American Cinematographer

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Pat O'Brien

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CINEMATOGRAPHER

A Technical and Educational Publication, Espousing Progress and Art in Motion Picture Photography

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BOARO OF EOITORE· Gilbert Warrenton, William Stull, H. T. Cowling, Ned Van Buren, Joseph Oubray, Geerge Schneiderman, Hatto Tappenbeck.

EMERY HUSE
Technical Editor A S C

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Sound Pictures in the Solution of Solar Eclipse Problems

by **F. P. BRACKETT**
Pomona College, Claremont Calif

IN ALL strange and beautiful phenomena of nature, I suppose there is nothing as thrilling and spectacular as a total eclipse of the sun, and yet, strange to say, very few really successful motion pictures of a solar eclipse have been made

This is probably due to the fact that motion picture men and astronomers did not cooperate in the effort until within the last two or three years Several attempts to obtain such pictures failed because the cameraman did not follow the counsel of astronomers in meeting conditions entirely different from those with which they were acquainted On the other hand, astronomers, with all their experience in photographing celestial objects of all sorts, could not make a **motion** picture of a solar eclipse without the assistance of experienced motion picture men and their instruments

In 1923, astronomers flocked to California to observe a solar eclipse. In organizing an expedition from Pomona College, we conceived the idea of taking motion pictures which would furnish a complete graphic record of the eclipse for scientific study, and at the same time be of popular and commercial value as a motion picture. A scenario was written which included all the dramatic features incident to the preparations, the voyage to the station, and the activities of the observers during the eclipse, as well as views of the eclipse itself An agreement was made with a motion picture company to "shoot" the pictures When the time came, however, they decided "to go it alone," with the result that neither they nor we got the motion picture, though other parts of our work were successfully done.

During the past two or three years a number of good cinema-eclipse pictures have been made, one of them, by the way, on a winter morning in New York In every instance this has been accomplished by the earnest cooperation of producers and astronomers I believe that we have only started on the road to success in this field

A total solar eclipse occurs when the moon intervenes between the earth and the sun, and its shadow falls upon the earth. From any point in the shadowed area of the earth, one sees the sun covered by the black disk of the moon, its light being blotted out But if one were looking down upon the earth from the moon, he would see a dark oval-shaped shadow moving rapidly across the earth's surface.

If the shadow-spot were small enough he might even see it all from the summit of a high mountain or from an aeroplane Accordingly, Dr. Whitney and I organized another expedition from Pomona College, at the time of the total solar eclipse in April, 1930, to obtain motion pictures of this shadow of the moon upon the earth from an aeroplane, and to locate the shadow and time its motion with the greatest possible accuracy

The result of this undertaking, if successful, would be that we should be able, by locating and timing the shadow, to determine with new accuracy the moon's distance from the earth, and so the relative positions of earth, moon, and sun, and hence, among other things of much importance, to permit more accurate computation and prediction of eclipses

Stated thus briefly, the problem looks simple enough, and is easily understood but it proved to be quite an undertaking, involving hundreds of people and elaborate equipment

The eclipse of April 28, 1930, was very unusual, and because of this unusual character, it was ideal for our purpose The eclipse was very short, totality lasting only 1½ seconds (the average duration of a total solar eclipse is two or three minutes), which was quite unfavorable for most observations Its brevity was due to the fact that the shadow of the moon, cast by the sun, barely reached the surface of the earth, passing over a strip of a few hundred miles, and the shadow spot along this line was very small—only 2/3 of a mile across at its maximum

It is a very curious circumstance that the size of the moon and its distances from the earth and the sun should be in just such a proportion that the length of the moon's shadow (the umbra) very closely approximates the distance of the moon from the earth, i. e., about 240,000 miles It varies a few thousand miles in length, so that sometimes the earth is within the umbra and we see a total eclipse, and sometimes it is beyond the umbra (i e, in the penumbra) and the eclipse is annular It is still more curious and unique when these distances are so closely the same that the point of the cone-shadow just touches the earth's surface for so short a path and with so small a spot

Computation indicated that if pictures were taken from a height of 12,000 to 15,000 feet above the ground this shadow-spot might be entirely contained in the frames of a motion picture with margin enough for identification of nearby objects

Geometrically, of course, two points are needed to determine a straight line Hence, to locate the central line of the path of totality (which for a few hundred miles is nearly straight) we required two well separated sets of positions of the shadow This meant also that we required four stations, two on the ground and two in the air, two good motion picture cameras, and two powerful aeroplanes.

This is not the place to tell the long story of preparation—the preliminary computations, the study of lighting conditions, the investigating and testing of films, the securing of aeroplanes and cameras, the selection of stations, the building and adjustment of auxiliary instruments, the transportation to the stations and setting up of the instruments, the placing of a large pattern of identification marks over miles of desert floor —two or three months of intensive work

In solving this problem not only the exact location of the shadow was needed, but the exact time of the spot-location for each separate picture For this, very fortunately, we were able to use a method that would have been quite impossible during previous eclipses—that is, to use a sound-camera to record time signals on the film itself Hence we had to provide either for an astronomical determination of time on the spot or for the broadcasting of time signals by an astronomical station, and this required a radio receiver in the aeroplane in addition to the camera

To make a long story short, we established two regular ground stations—one at Ramm's Ranch, near Camptonville on the west side of the Sierra Nevada range in Yuba county, Calif, and the other nearly 100 miles distant, at Honey Lake, north of Reno, Nev, on the east side of the mountains. Motion picture cameras for the graphic record of the eclipse itself and

(Continued on Page 20)

Screen Definition

by **DR. L. M. DIETERICH**
Consulting Engineer

PART X

IN the foregoing articles the depth effect produced by the screen presentation of a motion picture has been considered from different points of view

The ideal effect would be reached by endowing the screen picture with the main characteristics of natural vision, i e,

1 even definition throughout,
2 unlimited depth of focus; and

3 the simultaneous or within the limit of persistence of vision alternatingly projected series of simultaneously taken photographs, coupled by a parallactic lens system, each of these couples to be impressed on one eye only

This complete imitation of natural vision we call the stereoscopic effect

It has been shown that such an effect is at the present state of the art in optics, photography and projection still a practically unsolved problem and that even theoretical science has so far been unable to suggest to the practical worker any feasible plan to accomplish this result.

There are, however, a number of practical possibilities which each, in themselves, increase the depth effect of the screen picture over that now shown on the screen

The present screen picture has three visual characteristics producing a limited depth effect, which fluctuates with the skill of the cinematographer in accomplishing the best compromise between them.

The first compromise has to be reached between the focal length of the camera objective determining the maximum height and width of the field to be shown and the thereby established perspective

Reducing the focal length increases the depth of focus and field size but increasingly distorts the perspective characteristics of natural vision

The second compromise lies in the necessary illumination of the field

Contrasty illumination increases depth by increasing definition, but also tends to produce an unnatural sharpness or harshness

The outstanding cinematographer is the one who by knowledge and experience produces the best depth effect by the best solution of the complicated compromise between emulsion characteristics, lens stops, shutter control, illumination effects, and the careful spreading of definition

The above mentioned different compromises materially affect the final depth effect which is, furthermore, enhanced by the direct and relative motion of one or more objects in the field

These compromises encompass all of the at present available means to produce depth effects as far as the cinematographer is concerned

There are, therefore, no means on hand to fully cover the three conditions enumerated above

The Detrar lens, scientifically developed but so far not commercially introduced by the author results in photographs covering points 1 and 2, but still calls for a compromise between field size and perspective.

The Beach lens, known as multifocal lens and consisting of two concentric lenses of different focal value, also produces a marked increase of depth effect in portrait or still work with carefully placed objects, but has, to the knowledge of the author, so far not been developed for use in cinematography

The endeavors to produce small parallactic effects by oscillating or excentrically rotating lens systems have in some instances produced an increase of depth effects, based upon horizontally perceptible distortion results as previously explained in connection with the sight reactions produced by view through an uncorrected convex lens These increases of depth effects, however, can be and are by their very nature not of sufficient value to warrant their independent practical application, but become of importance only when we consider them as an additive element to other means increasing depth effects

Efforts in the direction of embossing negatives with minute cylindrical or even spherical lenses relate to this same group of distortion effects and again have independently only a small although beneficial influence upon depth of picture

A gradual increase of this picture characteristic is also practically brought about by the continuous improvement in standard lens designs, mainly by increasing by more thorough computation methods on the improvement of definition for an increased focal depth, also enhanced by improved tonal color corrections

A combination of these various improvements in depth effect, although individually rather small, would, in the opinion of the author, produce a marked improvement in screen effects

So far as projection and screen characteristics are concerned, we have a second group of individual improvements, a practical combination of which in themselves and in further combination with above cited improvements, should produce a final screen effect, which although not truly stereoscopic, would probably be considered as such by the broad mass of spectators.

This second group shall be considered in the next article and the conclusions to be finally deducted from these analytical studies are intended to prove that at the present state of the art, truly stereoscopic screen effects for the unaided eye are not obtainable, but that a logical and harmonious combination of practical detail improvements, so far perfected, should enable the industry to approach natural vision effects to a far greater extent than now practiced

Release-Prints

by **JOHN ARNOLD**

President, American Society of Cinematographers

AT A time like the present, two things are vitally necessary to secure value received for every dollar spent in production, and to assure that there can be no possible flaw in any of the many details of production which would cause a picture to be less attractive to its ultimate purchasers, the public. Naturally, then, every department of the motion picture industry is striving to secure maximum efficiency in production, and maximum quality in its product. Studio efficiency has reached a very high point, and with it the quality—especially the technical quality—of the pictures produced.

There is, however, one phase of the situation which has been generally overlooked. This is the release-print situation. The quality of the release prints of a picture is, naturally, of tremendous concern to the cameraman, for efforts are centered in getting the best possible picture onto the screen. If his efforts are to bear fruit, it is therefore vitally important to him that the release-prints of his pictures, which are the prints which are shown in the theatres of the world, are well made, and present his picture truthfully to the public. But it is a matter of equal importance to the producer, for the quality of his pictures can only be judged by the prints of the pictures which are seen in the theatres. Therefore, if the print is good, he can be sure that his story and cast are displayed to their best advantage; if the print is bad, story, stars, and cast will all suffer, and with them the producer's professional standing—to say nothing of his heavy investments in the picture.

For some time the American Society of Cinematographers has been conducting an investigation of the industry's situation with regard to release-print quality. It has found that a condition exists which is not only important to the cameramen, but to the producers—and the whole industry—as well.

To put the matter bluntly, the situation is just this: every producer in the industry is paying large sums of money for stars and featured players, and for expert cinematographers who can photograph these expensive players to the best advantage; but they are not getting full value for this money.

They are paying for—and getting—the best of acting and photographic talent on the set.

They are paying for—and getting—the best of laboratory practice for the daily and master prints which they, personally, see, and which they preview for the local critics.

They are paying, and paying well, for release prints which will carry that same high quality to their millions of customers throughout the country—**but they are not getting value received here!**

It has been forcibly brought to our attention on many occasions that the release prints which are shown in the theatres here and elsewhere are so carelessly made that they are scarcely recognizable as the same fine pictures which are shown to us in our own studio projection-rooms.

Now this is a matter which involves more than the mere pride of the cameraman: it is of very vital concern to the producer, for his income depends upon selling his pictures—and, in the last analysis, his stars—to the public. Every producer knows the harm that bad photography can do to a star, the effects of poor laboratory work are no less harmful. Either one can make a star look "played out", and draw attention away from the story. It has been argued that the public does not recognize good or bad photography; this is partly true, but the insistence on the part of producers for the best of photography is proof that they realize the fact that, while the public may not consciously recognize good photography, it does nevertheless unconsciously recognize—and resent—bad photography. And the public, not being as familiar with the details of picture technique as are those actually in the industry, can only blame these shortcomings on the star and the producer—and stay away from that star's or producer's pictures.

Inferior or careless printing can have identically this same effect. It can transform the most perfect photography into ordinary camerawork, and ordinary camerawork into hopelessly bad photography.

It must be said that the producer is rarely to blame for this situation. He is a busy man, he sees, as a general rule, only the perfect daily and master prints that are carefully made by his own studio laboratory; he has rarely either the time or the inclination to see his pictures again when they reach the theatres. He has seen perfect master prints, and, whether he is versed in photography or not, he knows that if one print of such quality can be made from a negative, two hundred, five hundred, or a thousand more can also be made from it. He knows that he has signed a contract for the necessary number of release prints with a laboratory which he believes is competent, and at a figure which he believes is reasonable. Therefore, he dismisses each finished picture from his mind, and concentrates upon the next one. He does not see the release prints which have been allowed to go out so badly printed that they are disgraceful travesties of the beautiful films he has made, or which have been shipped with entire sequences missing—left out by careless assembling in the release-print laboratory.

But the public does. It may not know just what is wrong, but it does definitely realize that **something** is wrong. It draws its own conclusions—and blames the star or producer.

Now, good release prints are not a commercial impossibility. "The Saturday Evening Post" is not a badly printed magazine even though there are two or three million copies printed each week. The processes of magazine printing are no less delicate or complicated than those of motion picture printing. The answer is that skill and care must be used in such work. This is not an unfair requirement, nor an impossible one. Certain studios have proven that good release prints are possible, and have found it commercially feasible to have such release prints. Some firms have achieved this by maintaining their own laboratories for release-printing; others have reached the same ends by demanding more careful inspection, and higher standards, in commercial laboratories. In any case, they have found first-class release prints not only possible, but commercially necessary. Yet there are still many instances of bad release-printing. Therefore, the American Society of Cinematographers, in cooperation with the Producers' Section of the Academy of Motion Picture Arts and Sciences, and the Association of Motion Picture Producers, is carrying on a programme of extensive research into laboratory practices, with the purpose of remedying this vital danger. The physical form of the release print, both silent and sound, has recently been standardized through the very good work of the Academy and its Producers'-Technicians' Committee, and that this great forward step has been taken leads us to hope that the even more difficult task of standardizing the photographic form and quality of release prints may likewise soon be an accomplished fact.

The Bomb Mike

by **WESLEY C. MILLER**
Chief Engineer, Sound Dept., Metro-Goldwyn Mayer Studios

WHEN SOUND recording was introduced to the motion picture studios it was fortunate that the condenser type microphone had already reached a high state of development. Other parts of the equipment and technique were admittedly almost embryonic and required much attention and study. The microphone and its accompanying amplifier have, however, remained essentially unchanged, and in their original form have become well established accessories to be seen on any set.

Within the past few months the research activities of the electrical suppliers have culminated in the presentation to the field of two new types of microphone, the ribbon and the dynamic instruments. Many of these are already in use, and rapid progress is being made in the elimination of the difficulties which any new piece of apparatus may be expected to show.

At the Metro-Goldwyn-Mayer Studios studies were made of these instruments with varying results. Eventually the economic problem was raised of deciding the ultimate disposition of a large number of the old standard microphones in the event that one of the new types proved sufficiently superior to be adopted. As a result an attempt was made to improve the operation of the older instruments to the point where they were comparable with or better than the newer types. The results were eminently successful and culminated in the adoption of a form of instrument which from its appearance was quickly nicknamed the "bomb mike."

The original standard instrument included an amplifier, usually a single stage, mounted in a tubular container arranged to be normally used in a vertical position. Attached to and beneath this amplifier housing was a housing for the microphone proper. The latter being connected to the amplifier by short shielded leads. The microphone and housing construction were such that the diaphragm was at the bottom of a tube, the diameter of the exposed diaphragm, and perhaps 3/8" deep with perpendicular sides.

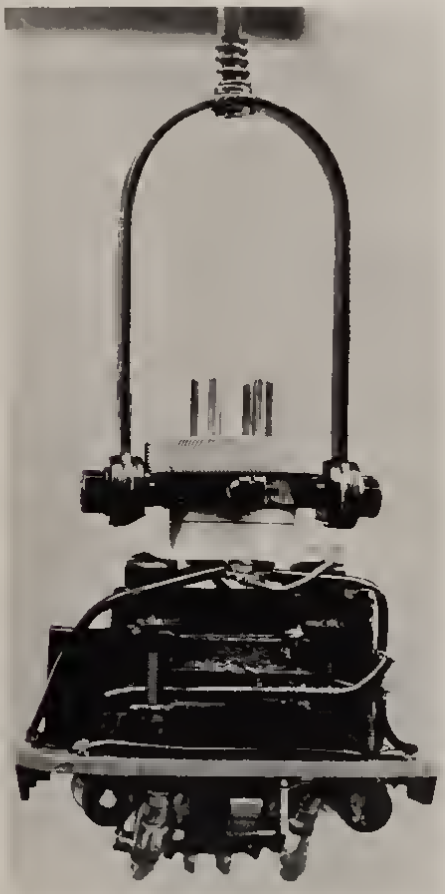
It has been known for some time that a decided resonance existed in the instrument at about 3500 cycles per second, caused largely by this tubular cavity. The first corrective measure was then to reduce this effect. This was done by bevelling off the corners of the clamping ring down to within a short distance of the diaphragm, and by redesigning the mounting plate and guard screen so that the diaphragm was at the bottom of a conical rather than cylindrical well. The reduction of the resonance effect was immediately noticeable even in the original housing.

Mr. Miller painting out the differences between the bomb microphone and the old type to Anita Page.

The next step was the application of acoustic theory to the design of the housing.

An ideal microphone would probably be of infinitesimal dimensions so that it would be effected by all acoustic waves passing it but would have no effect upon them. The best approximation of this condition has therefore been far from perfect. However, with the microphone of the present size we have to consider the effects of two phenomena, reflection and diffraction. The significance of the former is generally understood. Diffraction often receives less consideration—it is the term describing the distortion of a wave form as it passes an intervening body.

Under the usual set condition, sound reaches the microphone diaphragm in two ways. First, it comes directly from a source in front of the diaphragm. Second, and usually with at least equal magnitude, it is reflected from all the walls, reaching the diaphragm in varying amounts from every angle. Sound coming from any angle other than normal to the diaphragm sees the microphone as an obstruction, and is diffracted around it. That which strikes the diaphragm directly moves the latter, and then passes on. That which comes from other angles considers the obstruction first, and then strikes the diaphragm. The latter part is then quite apt to be in a sort of transition state, trying to get from the diffracted condition back to its normal form as the wave keeps going out past the microphone. If the diffraction is kept regular and of a minimum amount the transition condition is little different from the undiffracted sound, and the diaphragm is affected by an undistorted wave.



A closeup of the Bomb Microphone

The Bomb Microphone in use

Two forms immediately suggest themselves, stream-lining and the sphere. The choice is simple. We are dealing with wave motion, not air velocity. Hence, stream lining is not what is needed. The sphere, on the other hand, can be proven to result in the minimum of distortion from diffraction.

In practice the size of the sphere is governed by several considerations. It should probably be as small as possible. On the other hand, it should be large enough to enable the microphone diaphragm to approximate the spherical surface. A six inch diameter sphere meets both conditions rather well, and at the same time, permits of a unique departure in amplifier design in that the complete amplifier may be housed in the spherical microphone container, thus making a single unit of the whole instrument.

Such a design has been completed by Metro-Goldwyn-Mayer Studios. The details will be evident from the illustrations. A light but rigid hollow cast aluminum sphere, 6" in outside diameter, smooth on the outside, and carefully machined at the joint between the halves, forms the housing. The microphone is mounted in the surface at an angle of 45 degrees

(Continued on Page 24)

A 35-mm. Portable Sound-Film Projector

by **HERBERT GRIFFIN**
International Projector Corporation

THIS new equipment consists of a portable motion picture projector and sound reproducing equipment of fundamentally new design, which in motion picture projection and sound reproduction will produce results even superior to those obtained with the best theatre equipment. It is the first apparatus of its kind which has been designed to fulfill these two requirements and in no sense is it to be confused with that type of equipment consisting of make-shift apparatus assembled from silent equipment with sound attachments added.

Excellent projection and first-class sound reproduction, of course, must be the major considerations nowadays when designing new equipment, and with this in mind the optical system for motion picture projection has been selected with a view to producing results heretofore unobtainable in this class of equipment. The illuminant may be either the T-20 900-watt, 30-ampere monoplane filament lamp, which has been generally used with excellent results in the medium size and smaller motion picture theatres of the country, or the T-20 1,000-watt 110-volt lamp. A pre-focus mogul base lamp socket is provided so that either of these lamps may be used interchangeably and, inasmuch as a separate circuit is provided to this pre-focus socket, no internal wiring changes are necessary regardless of the type of lamp selected. It is only necessary to plug a 110-volt A.C. line into the lamp receptacle, the position of which will be pointed out later, or when using the 900-watt lamp, a transformer designed for use in connection with it may be readily connected in the circuit.

The condensing system is the well known and extremely efficient Bausch and Lomb Cinephor PM-15 and PM-25, and the projection lens mounts are so constructed that any type of lens may be used having standardized dimensions. This means that the full-size, No. 2 or Series II lenses may be readily accommodated in any focal length.

The Sound Reproducer

The sound reproducing equipment has received equal consideration: the exciter lamp socket is rugged and the optical system is sturdy and rigidly mounted. The sound reproducing gate deserves special attention inasmuch as no tension shoes or springs are used at the sound take-off aperture. The film after leaving the sound gate feed sprocket is passed over a roller and tension is applied at this point. A curved plate is provided, the curvature following the tangent of the roller above referred to, and the film after passing the sound aperture plate follows the tangent of the plate over the rim of the sound sprocket. It is apparent, therefore, that the film remains in absolute contact with the sound aperture plate and that not only is buckling eliminated at this point but also, because there are no tension shoes or springs in contact with the film, there is no danger of emulsion collecting and causing the many defects in sound reproduction traceable to this source. The film is laterally guided by the edge on which the sound track appears, so that there is no weaving of the film in passing the reproducing light beam.

The photocell is mounted directly behind the sound aperture plate, and because there are no lenses of any kind between the plate and the photocell, the maximum amount of light is passed through to the cell. A shield completely envelopes the cell except for a small window to allow the passage of light from the optical system, and should it become necessary to quickly replace the photocell, this shield may be immediately removed and the cell instantly replaced.

Referring to Fig. 1, the pre-focus socket providing interchangeability of lamps is seen at A, the Cinephor condensing lens system at B, the rear shutter housing on the operating side at C, and the operating motor with its cooling fan at D, the mechanical filter between the motor and driving mechanism may be seen at E, an auxiliary shield is seen at F, the purpose of this shield being to protect the projectionist's eyes from the bright glare of the projection lamp should it at any time be necessary to open the rear door while the projector is in operation. At G will be seen three switches, one for the exciter lamp, one for the projection lamp, and the third one for the operating motor. These are readily accessible through the rear door.

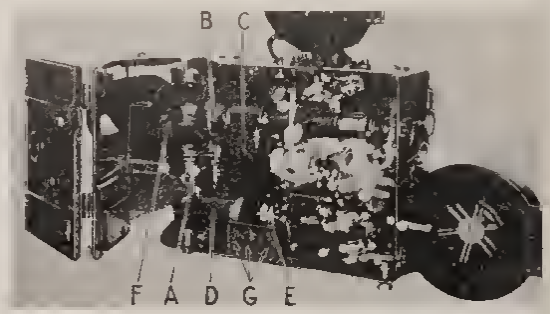


Fig. 1

Film Operating Parts

A complete idea of the arrangement of the film operating parts may be obtained by referring to Fig. 2, which also shows the film in place for operation. At A is the feed sprocket, at B the intermittent sprocket, at C the sound gate feed sprocket; at D the constant speed sound sprocket, at F the take-up or holdback sprocket; at G, H and J, are the pad rollers which maintain the film on the two feed sprockets and the holdback sprocket; at K and L are the tension shoes for the sound tension roller and the constant speed sprocket, respectively, and at M the tension shoe to maintain the film on the intermittent sprocket. All of these pad rollers and tension shoes are so designed that they are locked in either the open or closed position, and the possibility of their changing positions with relation to the sprockets when closed is entirely eliminated by the positive stops provided, which, once adjusted, always remain fixed in the same position thereafter. At N is the motion picture projection gate which may be opened or closed by turning knob O to the right or left, respectively, and in either position the gate is securely locked.

A double aperture of the vertical sliding type is provided and by turning knob P either the silent film projection aperture or the sound film projection aperture is brought into place and locked in position. At Q is a pilot light to give illumination for properly placing the picture in frame when threading. Stripper plates are provided for all sprockets, three of which may be seen at R, Fig. 2. At S is seen the framing handle controlling

the rotation of the intermittent sprocket for framing the projected picture either before or during operation; at T, U, V, and W, are seen the exciter lamp socket, optical system, sound aperture plate, and photocell shield, respectively, and the path of the film through the mechanism may be readily observed by careful study of this picture. The entire projector is built up of separate assemblies any one of which may be readily removed at will without unduly disturbing any of the other parts

The operating mechanism is entirely enclosed on side also by means of two doors Opening these doors exposes to view the mechanical operating parts of the equipment, as in Fig 3. By referring to this figure it will be noted that the equipment is direct connected throughout to the motor, no belts of any kind are used, and a mechanical filter is placed between the motor and the mechanism so that vibrations or other impulses from the motor cannot be transmitted to the mechanism proper. The driving shaft then continues straight through the lower part of the projector and is gear connected to the constant speed sprocket shaft, the vertical driving shaft driving the balance of the projector, and the take-up magazine. The constant speed sprocket is satisfactorily filtered by the same type of filter employed in the motor shaft and there is but one pair of gears between the driving shaft and the constant speed sprocket shaft

The intermittent movement and shutter synchronizing means are mounted in one common casting A, Fig. 3, and this system is fundamentally new in design It also allows for but one pair of gears between the shutter shaft and the intermittent movement The picture is framed by rotating the intermittent sprocket and this is accomplished by turning the framing handle shown at S, Fig 2, when the entire intermittent and shutter support casting A, Fig 3, is rocked in the arc of a circle, maintaining absolute synchronism between shutter and intermittent movement, and allowing the elimination of the entire train of gears ordinarily present to accomplish this result in all other types of motion picture projectors

Oiling of the mechanism is accomplished through oil tubes running directly to every bearing from common manifolds, and the type of bearing used together with the excellently designed lubricating system are an absolute assurance against the binding of the mechanism at any time.

Rear Shutter Equipment

The revolving cut-off shutter is placed between the condensing system and the aperture as in modern professional equipment and is entirely enclosed, as shown at B, Fig 3. It is well known that the placing of the shutter in this position immediately reduces the heat incident upon the film by fifty per cent, and inasmuch as the light beam is always of the same dimension

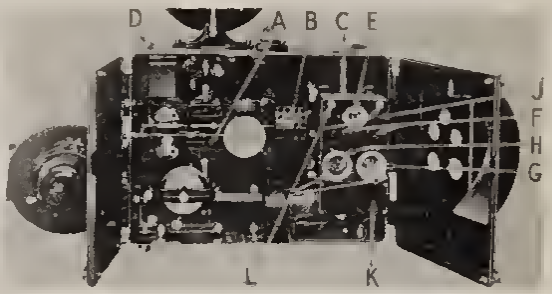


Fig. 3

in this position it is unnecessary to use shutter blades of varying widths This shutter performs a double function, no fire shutter in the generally accepted term forms part of this equipment, but the revolving shutter, when the projector is idle, is entirely closed for its 360 degrees When the projector reaches a predetermined speed, two blades of the revolving shutter fly open behind two fixed blades, the shutter then becoming in effect the usual cut-off shutter with two 90 degree blades Attached to the shutter shaft also is a fan for forcing a cool draft of air over the entire rear section of the equipment containing the lamphouse At C, Fig 3, is shown a dowser knob by means of which, if desired at any time, the light may be cut off from the screen while the projector is running, and at D is shown the knob for sharply focusing the projecting lens

In the rear (Fig 31, we see the input and output receptacles for carrying the current to and from the equipment during operation At E is the 110-volt input from the line —this feeds

(Continued on Page 41)

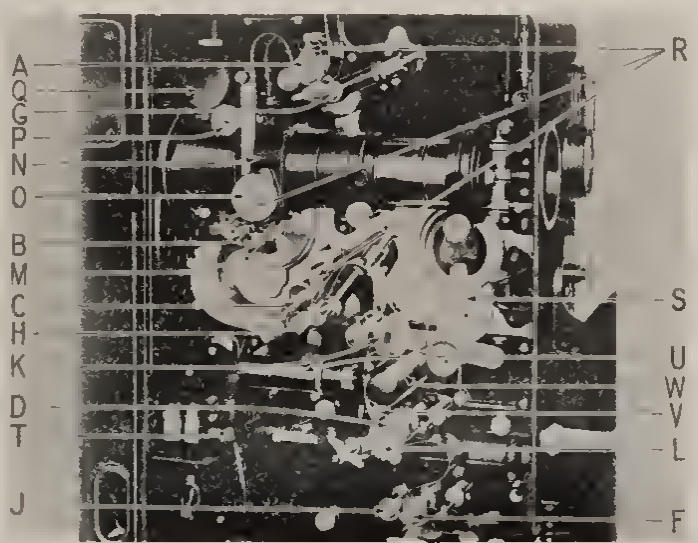


Fig. 2

A Standard Grey for Linens

by **VIRGIL MILLER,**
Head of Camera Dept., Paramount Studio

THE MOTION picture may be an art, but it is also a vast manufacturing business. Therefore anything that can possibly increase the efficiency of production is definitely desirable. As a whole, production methods of today are more efficient than they ever have been—perhaps as efficient as they can ever be in so unique a business. But there remain many smaller details which can be improved with great benefit to the industry as a whole.

One of these is the matter of standardizing upon some definite shade of material for textiles—personal, table and bed linens, especially—which are to be rendered photographically as white, but which, for photographic reasons, may not actually be white. Of course, the most desirable condition would be one that permitted the use of fabrics which were actually white, but unfortunately, this is rarely possible. Large expanses of white surface, such as those presented by table and bed linens, and smaller expanses of white, in close proximity to larger areas of non-reflective blacks and dark blues, as encountered in men's dress wear, etc., give rise to halation when photographed. In other words, they tend to glare, and the image of the white area enlarges itself to spread over the adjacent, darker areas. Therefore it has been for many years the custom to use fabrics of some other hue, which, though pale enough to photograph as white, are still sufficiently tinted to avoid the glare and halation which are so undesirable. This is a very reasonable and necessary practice, but unfortunately there has been no attempt to adopt a standard hue for these textiles. Instead, the matter has generally been left to the option of the individual cinematographer, or to the whim of the wardrobe or property department in question. Accordingly, there are a surprising variety of hues in general use: pale blues, pale yellows, ecru (a pale, reddish pink), and pearl (or "Pickford") grey being the most common.

This naturally leads to a most confusing situation, and to much useless duplication and expense to the studios and to the individual players, as well. A studio may have practically standardized upon, say, pale yellow for all the linens in its wardrobe and property departments, while another one may have adopted ecru. Each may have perfectly good reasons for making this choice, it would all be very well if studios were entirely self-sufficient, and studio personnel were stationary. But sooner or later a cinematographer from one studio will be engaged by the other: then when scenes requiring dress garments, or large displays of table or bed linen are encountered, that cinematographer will, quite naturally, demand textiles of the hue with which he is most familiar. In all probability, the wardrobe and property departments will be forced to supply him with what he requires, and be themselves forced to either duplicate the items required in the new shade, or to dye their existing ones to suit the cinematographer's choice. In turn, they will naturally attempt to use these duplicated items in the next similar picture, which may be photographed by a man who will flatly refuse to use that particular shade—and who may even prefer a third color, requiring still further duplication. All of this is a heavy expense to the studios, and it is a still heavier drain upon the resources of the individual actors, who maintain their own wardrobes, and who must naturally comply with the wishes of the cameraman as to the shade of their linen accessories. And if they decline to cooperate, it puts the cameraman at the disadvantage of having to adapt his lightings and filters to attempt to make two or three or even four different hues of linen all photograph as the same clear white.

Obviously, this is not an efficient state of things, for it consumes time, money, and tempers needlessly. Therefore, common sense indicates that there should be adopted one standard hue for such fabrics, which would be the same throughout the industry, and which would remain the same under all photographic conditions.

To this end, the Photographic Department of the Paramount West Coast Studio, has for some time been conducting tests to determine just what is the best shade for this purpose, with a view to adopting this shade for a standard in our own pictures, and with the hope that the Camera and Wardrobe Departments of the other studios will benefit by our experiments, and eventually adopt the same standard themselves.

In our researches, we have tested whites, light blues, pale yellows, ecrus, and several shades of light grey. Our requirements were simple: we sought a shade which would positively remove halation, and which would photograph a clear white **under every condition of lighting and filtering met with in ordinary production.** Our results were very positive. The blues were ruled out almost immediately, due to the fact that they are affected not only by the yellow filters, and by incandescent lighting (which gives a correction approximating that of daylight and a K-1½ filter), but by the deep red filters used in making night scenes by daylight, these latter filters changing the blue to black. The pale yellows are likewise affected by filters. Ecru was found to be rather better, particularly with the new, highly panchromatized "Fast Film." But the greys were the only ones which were found to remain uniform throughout the entire range of conditions met with in production. Pearl grey—or "Pickford grey," as it is frequently called—is definitely the best shade for this purpose. It is sufficiently un-white to eliminate halation, and, being a non-chromatic tint, it cannot be affected by any conceivable combination of lighting or filtering. It has furthermore met with the complete approval of the majority of the individual cinematographers in the department. Therefore, this studio is definitely standardizing on the use of such material for all purposes.

It may be asked, why, in view of the recent introduction of the "greyback," non-halation film bases, is it necessary to go to further trouble in attempts to reduce halation? Will not the film itself take care of this?

The answer is that the film will do a great deal to reduce halation, but that in extreme cases, such as encountered in men's dress clothes, where relatively large areas of unrelieved white are adjacent to equally large areas of unrelieved black, it cannot completely prevent halation. Under some conditions, it probably would be quite sufficient; but on a large set, with the light playing from so many different angles, and particularly with such large amounts of top back and side light as are now used, halation is almost inescapable. The new films undoubtedly reduce halation in these instances to the minimum: in fact, were the picture area of the film larger, they would probably eliminate it completely, in so far as practical results are concerned. But the picture area is so very small, with such minute images, which are in turn enlarged so tremendously when projected, that even the minutest vestige of halation becomes of consequence. Therefore it behooves us to employ every means at our disposal to eliminate the slightest trace of halation. The new film-bases go a great way in doing this: but since we have the means of aiding them at

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A "Little Fellow" Carries On

A Word from the Commercial Film Man

by **EDWIN L. DYER, A.S.C.**

WHENEVER a group of Hollywood studio cinematographers get together, sooner or later the conversation will turn to the "good old days" when they were struggling newsreel or commercial film makers—long before they came to Hollywood and its completely equipped studios. For most of the outstanding cinematographers of today received their cinematographic baptism in the commercial film business long ago. Naturally, they like to sit and spin yarns of those early days, when they had virtually nothing to work with—and everything to do. Naturally, too, having worked so long in the luxurious surroundings of studio production, they are inclined to consider the conditions of these early days as gone forever.

But they are not! The commercial film business hasn't been blessed with the untold millions that have been poured into studio production—so even today the life of a commercial cameraman is much the same as it was years ago. He must still, as a rule, be cameraman, director, production manager, laboratory staff, business manager, distributor, and everything else himself. Of course, some few firms in the larger cities have waxed prosperous, and become sizeable producing organizations, but the little fellow still exists in most cities, and—believe it or not—still manages to make pretty good pictures, and even to eat now and then.

Everyone undoubtedly remembers the first attempts at screen advertising—badly colored and cracked slides advertising the local butcher, baker, and candlestick maker. Then some enterprising wight bought himself a movie camera (or, more likely, made one) and proceeded to sell the local merchants the idea of using real, honest-to-God **movies** instead of the slides.

Most of these early ads were animated cartoons—sometimes merely animated, cut-out letters; later, jerky, animated drawings. But they were a start. Soon the local clothiers, motor-car dealers, and the like, began to want real moving pictures of their products. These were at first shot outdoors as a real studio would have been an impossible expense. All that one could possibly have was a camera, and a laboratory of sorts, questionably dark, but miraculously adequate for the old ortho film of the day.

The cameras used for this were equally crude. At first, a lot of the boys built their own cameras out of old projector-heads. Then, growing more prosperous, they managed to acquire amazing bargains in antiquated Pathes, Williamsons, Ernemanns, Prestwiches, and so on. The man who owned a third-hand Studio Pathe was considered prosperous indeed—and he who had a real Bell & Howell (of any age!) was rich indeed. Then came the war, and in its wake a lot of Government-surplus cameras. New Universals came down as low as $400! That was an awful lot of money for a camera—but the Universal was a marvellous camera, so a lot of us plunged, hoping that business and the bankroll would somehow stand the strain.

Our laboratory equipment was quite in keeping with our cameras. Usually it consisted of home-made pin racks and trays, capable (sometimes) of handling a whole hundred feet. If we were rich and ritzy, we might own a Stinemann developing drum—a 200-foot one if we were **very** rich—and perhaps one or two tanks. Printers? Well, the less said about them, the better. Many of us built our own; those of us who were better off managed to acquire ramshackle Williamson or other printers, which had usually had so much experience that they leaked light in every direction—in spite of being swathed with layers of adhesive tape. And yet, the darn things managed to print passable pictures for us oftener than they fogged them.

And, incidentally, as far as equipment goes, most of us were inveterate traders. Not that we often bettered ourselves by the trades—but at least we exchanged stuff whose shortcomings we knew for junk which might perhaps not have those particular faults, though they inevitably brought their own new troubles. I imagine that the dealers must have had many a laugh at our expense! I remember once of a trade that surely must have given one dealer many a chuckle, in a certain mid-western city there existed—how, no one knows—two commercial cameramen. These fellows were not only commercial rivals, but personal enemies, even to the extent of taking enthusiastic punches at each other now and again. Each, according to his rival, was a thoroughly rotten cinematographer, and owner of the most worthless equipment in the world. The one point in common between the two was that they would make periodical pilgrimages to this dealer, returning with new booty. Once it happened that their visits synchronized beautifully: each had just shipped his old printer in, and followed it himself to select a new one. They arrived within a few days of each other, made their selections, and

Edwin L. Dyer, A.S.C.

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Hal Hall SAYS

A Sensible Idea

SOME of the sanest suggestions regarding the making of motion pictures that this writer has heard of in many years are to be found in a paper by Frank Woods, former Executive Secretary of the Academy of Motion Picture Arts and Sciences, entitled "Improvement of Screen Entertainment"

Outstanding in the paper is the suggestion that feature pictures be cut to the length warranted by the story, and not be governed by the idea that to be a feature picture it must be of a certain length—even though the story has to be padded out in such a way as to spoil what might have been a good picture Mr Woods suggests that the feature pictures, except in unusual cases, be cut to an hour or less In exceptional cases where the picture runs longer, Mr Woods suggests that the over-length be fully justified by audience appeal

Among the other suggestions are to found the following

Restore to feature pictures a larger measure of fast action which formerly gave to them their greatest appeal, utilizing all devices, including parallel lines of action to give us genuine motion pictures

Do not sacrifice, however, the great boon of vital dialogue and sound effects

Remember that the original lure of motion pictures was the illusion of reality Therefore, avoid straining credulity Emphasize truth

Continue to improve still further the production quality of features

Arrange future production plans to avoid over-production of single types of stories by all companies

Balance the program with short subjects that will make the second hour's entertainment supplement in diversity the feature hour

Concentrate attention on the production quality of short subjects by paying more rental for them, with a view to raising their appeal as nearly as possible to a par with features

Increase the importance and showing time of news reels by interpolating side shots of human touches and reactions

Produce short special news subjects when the events warrant, together with short true stories

Endeavor to provide better types of short comedies, in place of the over supply of silly trash, paying real money for ideas

Introduce "true story" and action quality into travelogues and the like

Seek for new ideas for short subjects of all kinds, by intensified search and money rewards

The genuinely big picture should be confined mainly to subjects of big and commanding importance, although program features may frequently show super-special quality Big pictures are the high spots of the industry They should justify their length by their power to command audience interest throughout their running time

Epics on historical subjects should include great moments of history truthfully pictured

Release Prints

ON another page in this magazine will be found an article dealing with the subject of poor release prints A short time ago the action of the American Society of Cinematographers regarding the poor release prints found its way into the various motion picture trade papers

And now, in the August 22nd issue of Motion Picture Herald, we find Mr William Kelly, MGM's supervisor of print work, quoted as saying

"Just so much blah The obvious idea is that someone is offering alibis for camera work"

If Mr Kelly really made such a remark, this writer is surprised for it would seem to indicate that Mr Kelly is not keeping as closely in touch with the picture business as he should, holding the position he does If one has eyes and a comparatively small amount of brains he will long ago have observed that the camera work is one of the few elements in the picture production field that has been consistently good Many a sadly cast and produced picture with a story not worthy of the name has been saved by the excellent cinematography The studio executives watch the photography with much more vigilence than they appear to watch most of the other elements of production A cameraman, unlike a supervisor, is out if he turns in a rotten job He has no alibi He wants none If his work is poor he does not try to "pass the buck"

What the American Society of Cinematographers is trying to do is to try to bring about a condition whereby all release prints are uniformly good Those who criticise the cameramen for wanting to make pictures better shows either a large degree of misunderstanding, or else they do not have the real interest of the picture industry at heart

Nat Saland president of Craft Film Laboratories, quoted in the same issue of Motion Picture Herald as Mr Kelly, agrees that there is merit in the charges of the cameramen and practically admits that the claims of the cameramen are true in some cases when he is quoted as saying

"When sloppy work is turned out, it is because producers batter down the prices of small plants to such a low level there is no margin of profit for quality work Also, laboratories who finance producers sometimes find themselves working in too close a margin, where quality must suffer"

That is saying a lot, Mr Saland And this writer admires you for it

All anyone needs to do to see the poor release prints is drop into any but the first run theatres and take a look for himself

◆

Musicals

IT IS good news to hear that musicals are coming back Let us hope that they are good ones, and that no player be allowed to sing unless he or she has a good voice and knows how to use it That was one of the reasons musicals fell by the wayside

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EASTMAN *SUPER-SENSITIVE*

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Sound Pictures and Solar Problems

(Continued from Page 9)

other instruments for the more customary eclipse observations were set up at these stations. A great deal of consideration was given to the matter of landmarks which could be identified in the pictures of the shadow. Huge crosses of canvas were suggested, and whitewashed areas and buildings, in addition to the natural features of the landscape. All these were used to some extent, but in the end we relied chiefly on pairs of 25,000 candle-power flares, suitably placed and set off by alarm clocks. By placing these pairs of flares, some parallel to the central line of the computed path of the shadow and some perpendicular to it, and by spacing them differently in certain patterns, we could identify any pair in any frame of the picture.

Eventually, two large planes, each with two experienced pilots, were placed at the service of the expedition. One was a tri-motored Fokker cabin plane and the other a large Fairchild army plane. The Fokker, assigned to the Ramm's Ranch station, was equipped with a first-class motion picture camera, and flew from Mather Field.

A place on the dry bed of Honey Lake was chosen as the base for the army plane. In this plane were installed the sound camera with its amplifiers and batteries and the radio receiver. Arrangements were made with the Navy Department to broadcast time signals each second during the period of totality for this region.

A number of test flights and exposures were necessary so that all the complex manoeuvers of observers and instruments could be tried out and coordinated, the pilot, for instance, handling the plane so that the camera could follow a train on a curved track. All this was accomplished from Clover Field where the instruments were installed in the army plane under Captain Stevens who commanded the plane, and who, being himself a skilled aerial photographer, aided the sound camera expert by operating the camera.

On the day of the eclipse heavy clouds covered both sides of the mountains throughout the period of the eclipse. Only through breaks in the clouds were glimpses of the pageant seen from the ground. From the air, the sight was marvelous indeed. The plane from Mather Field, finding clouds over Ramm's Ranch, flew westward over the predicted path, as had been planned in case of such a contingency and took pictures of the country below, though not quite sure of the shadow, battling with cold and exhaustion at an altitude of 19,000 feet. Interesting pictures they are, taken through scattered clouds, but the shadow of the moon could not be defined in them.

The flight of Captain Stevens and his two associates in the army plane was even more dramatic and, I believe, also historic. The story is recorded in Pomona College publications —how they waited under the clouds, all ready to go, until hardly an hour remained to reach the great altitude required; how at last a small clearing appeared, and they took off, pushing up through this hole, through a mile-depth of clouds, and then came out above them; how they climbed still higher until they reached 18,500 feet, just in time to swing into position as totality began; how they blanketed their instruments to keep them warm and themselves to keep from freezing; how they had to conserve their oxygen supply, how they saw the shadow appear in the distance and rush on toward them; how they beheld it appalled, not realizing at first what it was, how they got their pictures in spite of every difficulty; and how they came down at last, through the clouds, to a safe landing on the dry lake bed—a thrilling story as told by Captain Stevens and his companion, James W. Balsley.

For the first time in history those men saw the great shadow of the moon coming upon them with terrific speed across the surface—not of the ground, alas—but over the upper surface of the clouds. For the first time motion pictures were taken of this phenomenon as the shadow came and went.

Astronomically, of course, we were disappointed that the shadow was not seen upon the ground where its exact position could be determined, instead of upon the rough and billowy surface of clouds where its outline was too vague to be well marked in the film, although it may be readily followed on the screen. Great as our disappointment was at the time, we know now that, while leaving much to be desired, the expedition was far from being a failure, as I shall point out in a moment.

So far I have spoken of one of the two problems in which our expedition was chiefly concerned. Let me now, much more briefly, refer to the second problem.

In this we undertook to measure the intensity of the sun's radiation, especially the intensity of the sunlight itself, at a number of points in a line across the path of totality. Five such points some 500 yards apart were selected at Ramm's Ranch, in a line perpendicular to the computed central line. At each point an instrument was placed, consisting essentially of a photoelectric cell and amplifier, and a milliameter whose index marked the changes in intensity of light as the shadow passed over the point during the partial and total phases of the eclipse. All these milliameters, each connected by long lines to its distant photometer, were mounted upon a panel at a central station together with two timepieces, so that all these ammeter dials and clock faces could be photographed simultaneously by a motion picture camera—by two of them, in fact. In this way a continuous picture was taken showing the variation in light intensity at each point, and graphs were plotted for each point. The net of these curves, then, not only locates the path of totality, but tells much more as to the intensity of the radiation and illumination.

At the national meeting of the A. A. A. S. in Chicago, last August, where the work of this expedition was reported to the Astronomical Section, it was agreed that two things were accomplished that were quite worth while. The solution of two entirely new problems had been undertaken. In both cases a new technic was proposed and tried out, establishing a new method which might be tried again with good hope of success even though the conditions would not be so favorable again for perhaps a hundred years. Already we are considering a repetition of the experiment with the eclipse of August, 1932, in New England.

This paper was presented at the 1931 Spring meeting of The Society of Motion Picture Engineers, and is published here through the courtesy of the Society's Journal.

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Mitchell Announces New Rolling Tripod

AN addition to the rapidly-swelling Mitchell line is a new rolling tripod for studio use. Unlike most devices of this nature, it is scarcely heavier than a standard cinema tripod, yet it is capable of supporting even the heaviest silencing "bungalows" now used. The height of the camera is controlled by a single crank, which by means of a triple-extension, telescopic support allows an unusual range: the lens of the camera may be dropped to within a yard from the floor, or raised to a height of nearly eight feet, with perfect stability at all positions. The head mechanism is the standard Mitchell friction head, with its telescopic arm, enlarged and strengthened to operate perfectly with even the heaviest of "bungalows," some of which weigh several hundred pounds. Due to its small size, and unusually great extension, this device should find favor in studio use, as it is sufficient for most uses, and therefore makes it possible for a single unit to replace three or four less flexible ones of varying sizes. In addition, as the device is equipped with standard Mitchell tripod legs, it may be used away from the studio, on location, very satisfactorily.

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Knowing the vast possibilities offered in Sound Recording, The Cineglow Sound System was designed for perfect, noiseless recording and portability. The U S Navy have awarded the contract for a Cineglow System on the basis of merit as well as price

The world famous Cineglow three element recording lamp is employed and the many improvements in design, such as the Cineglow Optical Slit — the Mechanically Filtered Sound Sprocket—AND A LICENSED AMPLIFIER go to make up the finest recorder on the market today

A live-wire cameraman can make BIG MONEY recording local events, tying up merchant-theatre campaigns, recording Industrial, Advertising, and Political campaigns, or Educational shorts. In Grantwood, New Jersey, the Royal Studios, Inc , is installing a double studio type Cineglow System and the new management plans a series of feature productions Similarly recordings made in the Atlas Soundfilm Studios of New York are now enjoying nation-wide release

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Cineglow Sound Systems

MANUFACTURED BY

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Cable address, SOUNDFILM, New York

The Bomb Mike

(Continued from Page 13)

in the lower hemisphere, this being an approximation of the normal mounting angle for the diaphragm. The amplifier inside is so arranged that in this position the vacuum tube is vertical Other angular positions of the diaphragm are obtained by means of a swivelled mounting bail at the top Connections are made through the usual type of plug, also at the top Thus, the only departures from the spherical shape are the diaphragm, the plug, and the mounting bail These are so slight that their effect is small

The amplifier apparatus is identical to the standard However, its arrangement is now such that not only is servicing much simpler than in the tubular mounting, but the electrical arrangement is superior. The microphone proper is also identical with the exception of the beveling mentioned before It is mounted in a separate holder which screws into the sphere casting, and makes connection with the latter, and with a spring connector inside The holder carries the guard screen which, incidentally, is made of coarser mesh and heavier wire to prevent the diaphragm action which sometimes existed with the earlier fine mesh screen With this construction the replacement of a microphone is a matter of a few seconds Along with all of these changes the weight of the entire unit is but 7½ pounds, a reduction of 5 pounds over the standard.

Measurements are being made to determine quantitatively the exact improvement which has been made These have not progressed to the point where they may be published, but they indicate a corroboration of the theory Listening and recording tests have, however, been made under every condition which arises in recording practice and practically without exception the results with the bomb microphones have surpassed those with any other instrument which has been available for test The effect is particularly pleasing in that the results of low frequency reverberation are so handled that roundness rather than tubbiness is felt Music is definitely improved The impression is that of a certain stereoscopic quality almost approaching the binaural listening which we get with our two ears It is felt that the reason for this is the minimizing of distortion of the sounds of reverberation. The effect on direct sound is small other than through the reduction of resonance The effect on indirect sound is great and uniform. The combination when used with existing reproducing equipment is most pleasing So pleasing in fact that the instrument has been adopted as standard for studio use by the Metro-Goldwyn-Mayer Studios It is predicted that a similar form will ultimately find general adoption elsewhere

◆

Standard Grey for Linens

(Continued from Page 16)

hand, we should employ them as well And since we must employ such aids, we should by all means standardize them within the industry, for the general artistic and economic betterment By so standardizing, we will not only improve the quality of our photography, but we will improve working conditions for cinematographers, and arrest a serious financial drain on both the studios and the individuals. And in times like these, if we can make production less costly and more efficient, it is manifestly our duty to do so.

◆

New Sound Apparatus

KNOTEK, a Czechoslovakian motion picture technician, is working on a new sound film apparatus which Prague professional circles assert will revolutionize existing sound patent devices The sound is electrically recorded on two different tracks and can be reproduced immediately The apparatus will cost from $250 to $300

..In the Realm of Sound..

"Vanities" Use Sound System

EARL CARROLL'S "Vanities" have adopted the Western Electric Public Address System for sound amplification and in doing so they are presenting to the public, for the first time, innovations that promise to revolutionize legitimate stage producing

At the new 3,000 seat Earl Carroll Theatre, the largest house in the country for legitimate stage production exclusively, a complete system of loud speakers has been installed for the new "Vanities". Six loud speakers have been installed in the auditorium itself and 20 in other parts of the building

The innovation is the result of demonstrations that have shown the lifelike amplification of the human voice by this system and is being introduced by Mr Carroll as part of his policy to provide mammoth musical productions at a reasonable cost to large sized audiences The loud speakers will insure perfect transmission of sound from the stage to every part of the house

Among the features that will be possible because of this innovation in the auditorium itself are

(1) A general reinforcement of music and voice from the stage;

(2) A disappearing orchestra working on an elevator platform so that after the orchestra has descended to the basement, the platform can be replaced and used for the stage production while the orchestra's music is still audible to the audience;

(3) Provision for individual features involving a specially constructed microphone arrangement, including a microphone that can be raised from alongside the footlights through a push spring operated by one of the actors on the stage This microphone system permits various combinations of musical effects on and off stage,

(4) The use of special records to reproduce off stage sound effects.

In addition to loud speakers in the auditorium itself, others, in dressing rooms and in the lobby will help evolve a general efficiency system

In the lobby the loud soeaker makes possible the curtain announcement for the beginning of each act

The loud speakers in the dressing rooms will enable members of the cast to hear a continuous reproduction of the performance on the stage and will make it possible for the stage manager sitting in the wings to keep the players in their dressing rooms advised of the play's progress and of their cues, eliminating the call boy's nightly rounds

The Public Address System installation at the theatre was made by Electrical Research Products represented by J. J. Way, Public Address System specialist and by I. F. Durst who supervised the work of installation.

◆

500 Special Size Units Sold By RCA Photophone

INITIAL manufacturing order of 500 units of Special Size RCA Photophone reproducing equipment, designed for small theaters, has been practically absorbed, and a duplication of the order has been entered, it is announced by E O Heyl, vice-president and general salesmanager Majority of the installations are replacements, says Heyl

Westinghouse Develops Lighting Control Relay

TO enable the intensity of natural light to control artificial lighting automatically, a new photo-electric lighting control relay has been developed by the Westinghouse Electric and Manufacturing Co

The operation of the lighting control relay, the company declares, is effected by variations in the intensity of light falling on the photo-electric tube These variations produce proportional changes in the amount of current passing through the tube, and this changing current, amplified in a specially designed amplifier tube, energizes a primary relay controlling an auxiliary contactor, which, in turn, operates the main contactor controlling the lighting installation

Automatic control applied to illuminated signs and show windows effects a maximum of advertising value, since it turns on their lights whenever artificial lighting can increase their visibility, and turns them off when artificial illumination fails to enhance their attention-getting power, the company claims

◆

Projection Rooms Made Portable and Permanent

PORTABLE and permanent fireproof projection rooms are being offered by the Blue Seal Products Co. of Brooklyn, manufacturers of motion picture accessores

The booths, which are obtainable in standard sizes ranging from 4 feet by 6 feet by 7 feet, 1 ½ inches high, to 9 feet by 14 feet by 7 feet, 1 ½ inches high, are made of ¼-inch thick transite with angle iron 1 ¼ inches by 1 ¼ inches by 3/16 inches. The panels are interchangeable and bolted together with stove bolts and the seams filled with transite cement The floor sheets are of ⅜-inch thick asbestos

Underwriters throughout the country, as well as the fire and building departments of all cities, have approved these booths, the company states

◆

New Sound Film Sets Put on French Market

THE following sound film reproduction sets have recently appeared on the French market·

"Universal," produced by the Societe des Appareils Sonores The price of 45,000 francs includes complete installations including two projectors for the projection of sound film bearing the sound recorded on film The system may also be adapted to any existing projectors. It is stated that this set includes numerous technical improvements one of them being the elastic suspension of the projectors which is supposed to improve the purity of sound by the absence of mechanical vibrations of the sound head.

"Teleson," produced by Societe Teleson-Film, is a sound head group that can be adapted on any projector. Price is 35,000 francs for complete installations

"Echo-Gesco," produced by the Societe Gesco, is a new sound head adaptable to all existing projectors No price has been quoted for this apparatus All the above sets are more especially adapted to the needs of small cinemas

Laboratory Department

Conducted by **EMERY HUSE, A. S. C.**

Principles of Sensitometry and Their Practical Application

Part 5

SENSITOMETERS

UP TO this point we have dealt only in sensitometric generalities, except for the rather detailed explanation and definition of the term "exposure" The proper sensitometric exposure necessitates more than a single exposure at a single intensity for a single time What is needed for sensitometric practice is a series of graduated exposures for which the time and intensity factors are very precisely known Naturally it is not feasible to make this graduated series of exposures by hand A mechanical device of some type is necessary Since the days of Hurter and Driffield it has been possible to make a series of graduated exposures by various means with the use of various instruments but fundamentally the procedure is the same The instrument by which such exposures are made is termed a **sensitometer** and a sensitometer may be defined as an instrument for impressing upon a photographic material a series of precisely known and graduated exposures Since it is of vital importance that high precision and reproducibility be obtained in exposing photographic materials, it will be necessary to devote considerable time to a discussion of the various forms of sensitometers that have been and are at the present time being used However, before entering into what must be, for a time at least, an historical resume of sensitometers, we should discuss some of the fundamental characteristics which are necessary for a proper understanding of the instruments After doing that we shall return to a discussion of some of the various instruments which have been and are in existence

The essential elements of a photographic sensitometer are shown in Figure 4, which represents a schematically generalized diagram A light source of known intensity emitting radiation of known spectral composition is represented by S This is placed at a distance D, from the exposure plane, R The surface of the photographic material, P, to be tested is made to coincide with this exposure plane, being held therein by some convenient element Between the exposure plane and the light source is located some type of exposure device, M It is necessary that the effective size of the light source and the distance be so chosen that the illumination I, incident upon the exposure plane can be computed by means of the inverse square law, the candle power of the source, of course, being known Moreover, the area of the surface of the photographic material

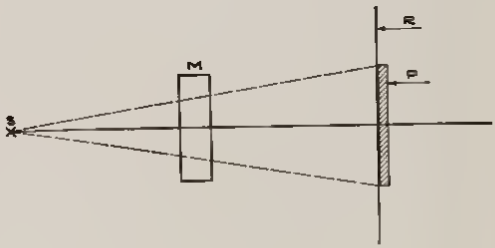

Fig. 4

to be exposed should be so related to the distance that the illumination on the area is the same at all points Under these conditions with no exposure device in place, or operating, the entire surface of the photographic material will be uniformly illuminated The function of the exposure device is to break up this uniformity in such a manner that various areas of the photographic emulsion surface are subjected to a series of different exposures which can be precisely determined In some cases the exposure device is one which breaks up the exposure into various time factors, while other conditions can be met which will break up the exposure from an intensity standpoint By this means we have time scale and intensity scale modes of sensitometry available These will be discussed in more detail later.

Light Sources

The characteristic of light sources used in sensitometry are of utmost importance Sensitometric characteristics must be precisely determined in order that they be of value and emulsion characteristics depend to a large extent upon the characteristics of the light source There are two things relative to the light source which must be precisely known and maintained; they are, first, the intensity and, second, the spectral composition It is well known that with the use of panchromatic films light sources of different quality produce markedly different results Therefore, it is easily seen how necessary it is to maintain a standard condition in the light source used for sensitometric purposes

It will be interesting and perhaps profitable to devote a little time to a consideration of the light sources that have been used in sensitometry Long before the first use of sensitometry pictures were made almost exclusively by sunlight (or sky light).

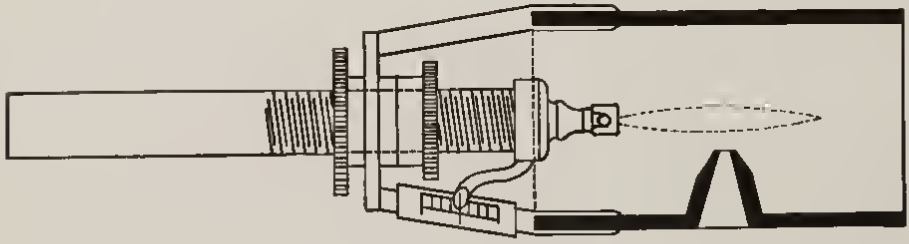

Fig 5

It is only natural then that the first sensitometers used to measure the sensitivity of photographic materials should use this light as the illuminant However, sunlight (or sky light) had its disadvantages owing to the variability of the intensity and the difficulty of control

In 1881 a photographic group in London appointed a committee to consider the standardization of plate testing. This committee recommended the adoption of an intensity scale type of sensitometer which was devised by Warnerke The light source from which the exposure was made was a phosphorescent plate employing a layer of calcium suphide This plate had to be activated first by burning magnesium ribbon near the surface of the tablet This, as can readily be seen from our present day knowledge, was an impractical sensitometer.

The selection of a light source for photographic sensitometry must of necessity be chosen after a consideration of photometry From the standpoint of artificial light sources we can see by the use of the word "candle power" that the candle must have played a part In Great Britain a standard candle was defined in the Metropolitan Gas Act of 1860 and for many years was the officially accepted unit of luminous intensity This candle was made of spermaceti wax to specific dimensions with a wick of specified material and size Operated as a standard candle it burned 120 grams of spermaceti per hour When Hurter and Driffield began their work on sensitometry they adopted this unit of luminous intensity as the light source However this artificial source failed to continue as a standard due to its lack of reducibility in meeting the requirements as a standard of luminous intensity In 1898 G A Vernon-Harcourt adopted the pentane lamp This lamp burns a mixture of pentane vapor and air in a wickless burner In the final form which was adopted in England as an official standard for gas testing a lamp giving a luminous intensity of 10 candle power was used Hurter and Driffield, after ruling out the candle, adopted this lamp as their standard

In 1884 in Germany the Hefner lamp was invented and was adopted as the official unit of luminous intensity and still is the official standard in that country This lamp burns pure anyl acetate Scheiner and his followers adopted this light source for photographic sensitometry

Voille proposed the use of an acetylene flame in 1895 and Sheppard and Mees in their investigation of the theory of the photographic process employed this as their standard The type lamp used by them was very unsatisfactory and later on in their work they adopted a different type of acetylene burner which was extremely useful and for a long time was used as the standard light source in photographic sensitometry by the Eastman Kodak Company Research Laboratories The design of this burner is shown in cross section in Figure 5. This burner gives a cylindrical flame, the brightness of which varies somewhat from top to bottom but there is a considerable portion approximately half way between the tip and the base of the flame where the luminous intensity per unit area is very constant By placing a screen or diaphragm very close to the flame a section can be isolated which serves as a fairly satisfactory standard light source As a result of investigations by L A Jones, it is possible to so adjust this lamp that with use a very slight percentage change is noticeable The burner as set up for use operates under a gas pressure of 9 cm of water. The calibration of this lamp must be accomplished by comparison with certified standards of candle power obtained from some standardizing laboratory such as the National Bureau of Standards of this country

◆

Research Tour

THE KODAK Research Laboratories are among eleven research organizations in various industries selected for a visit in October by 100 industrialists and bankers on a tour to be conducted by the National Research Council The purpose of the tour is to show business leaders what is being done in the advancement of scientific research.

There Are Lots Of Good Lenses . . .

but there is only one Raytar The Raytar is not just another *good* lens, it is an entirely different lens It is the result of sufficient scientific research and experiment, without regard for expense, to produce the one most satisfactory lens for motion picture photography.

The Raytar produces remarkably even definition over the entire picture area It has an exceedingly positive focus, a slight movement either way throwing the image distinctly out of focus The lens is fully corrected, and will perform equally well with arc or incandescent illumination, with orthochromatic, panchromatic or high-speed film, and it will take equally sharp pictures of any color or color combination. The glass will never tarnish or discolor

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Sound Engineering Dept. Added By Oliver Supply

A SOUND service engineering department has been added to the Oliver Moving Picture Supply Co, which recently bought out the Tone-O-Graph company, and is now prepared to service all Tone-O-Graph installations in this territory as well as furnish replacement parts required either for Tone-O-Graph or any other type of independent sound equipment.

In addition to serving these equipments, E E Oliver, president of the company, announces the opening of a consulting engineering department under the supervision of Homer D Briant, formerly of the National Theater Supply Co and the E. E. Fulton Co

Arthur Reeves Heads Hollywood Motion Picture Equipment Company

ANNOUNCING the organization of the Hollywood Motion Picture Equipment Company, with headquarters at 6416 Selma avenue, opposite the offices of Local 659, Arthur Reeves enters on a new affiliation For more than a year he has been a founder and a half owner of the Hollywood Camera Exchange, in the success of which he has had a large share He will continue to hold a substantial interest in that corporation

In his new home the veteran cameraman will specialize in sound equipment, to the development and in the expansion of which he has given the major part of his time during the last year, and in motion picture accessories generally

In the selection of the corporate name it has been the object to set forth exactly the aims of the company In other words it is intended to be able to equip a studio completely and to do the identical thing in the case of a laboratory.

In both departments every effort will be made to keep a step ahead in the developments and improvements Among these latter will be the realization in actualities of the ideas of some of the industry's best technicians

Among Art Reeves' achievements is the conception of the direct current interlocking motor, which has proved so successful that many of the large studios are employing the development for location work.

Among the devices to be put on the market at the new quarters is an optical unit for recording sound on film which will give a line of light on the stock so fine and so accurate that recording has been accomplished up to 25,000 cycles This optical equipment will accompany each outfit that is sold, with an accompanying guarantee of 10,000 cycles range

◆

Mitchell Announces New News Camera

THE NEW Mitchell Silent camera, which was described in the August issue of the AMERICAN CINEMATOGRAPHER, has since that time been modified for use in newsreel and commercial work The camera and its mechanism are basically no different from the regular studio design described at that time However, the four lens turret, which was eliminated in the new studio model, has been retained in the new newsreel camera The camera is also operated by a direct current motor, such as is used in most portable recording equipments and is supplied with a tachometer The design is such that the new camera may be used with any of the many portable recording devices now available, as well as with the small sound-truck units generally used by the larger newsreel firms Either single or double film recording systems may be used

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ANNOUNCEMENT

BEGINNING with the October issue, a pictorial section will be found each month in the American Cinematographer. In this section we hope to reproduce the finest collection of pictures to be found in any photographic journal.

In order to stimulate interest among members of the photographic craft, the American Cinematographer offers three prizes for pictures appearing in this section during the twelve months starting with the October, 1931, issue. Three impartial judges will decide on the winning pictures, and the awards will be made and announced in the November, 1932, issue of the Cinematographer.

Prizes will be—$100.00 for the first award. $50.00 for the second award. $25.00 for the third award.

This section is open to any bona fide subscriber to the American Cinematographer. Amateurs and professionals have the same opportunity. No one is barred. All that is necessary is that you be a paid up subscriber to the Cinematographer.

Only 8 by 10 or 11 by 14 prints will be considered. They may be on glossy paper or dull finish.

The names of the judges will be announced at a later date.

When sending your pictures take every precaution in wrapping so they will not be mutilated in the mail. The American Cinematographer will take all precaution in handling the pictures in order to keep them in excellent condition. However, this magazine will not assume responsibility for any pictures it receives, and will not be held responsible for loss or damage to prints.

Amateur Movie Making

by WILLIAM STULL, A. S. C.

MR JESSE S COHEN, of Brooklyn, N Y, is an amateur cinematographer, a reader of THE AMERICAN CINEMATOGRAPHER, and a very positive-minded individual, to boot. A few days ago he wrote us to appraise us of some of the shortcomings of this department. This is not particularly unusual, for no magazine can escape criticism from its readers; but Mr Cohen is unusual, for he criticized it constructively. He knew what he wanted, and told us about it. Furthermore, he sent us some samples of his work, and asked us to criticize his lightings. He says, "For example . . . you might criticize the following two lightings. I know they're wrong—I knew it as soon as I saw them on the screen—but what can I do about it? For example, take the following close-up (Figures 1 and 2). Well, you can tell at a glance what I had to see on the screen—it's flat. There's no detail in the faces because there's no play of light and shade. How would you light that?"

Fig. 2

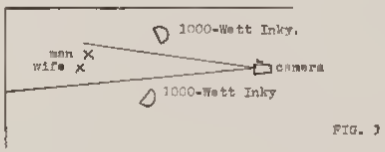

FIG. 3

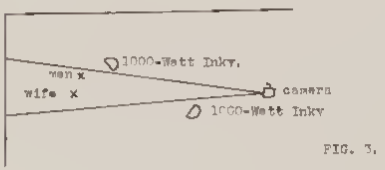

FIG. 3.

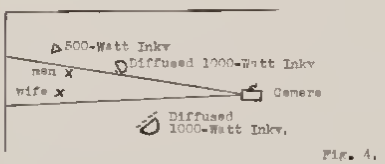

Fig. 4.

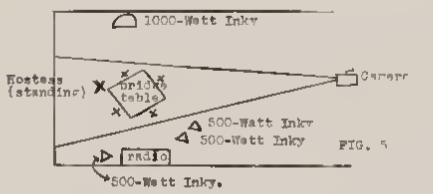

FIG. 5

Mr Cohen hit the nail squarely on the head; his picture is flat because there's no play of light and shade, or, to put it the other way, because there's no play of light and shade, his picture is flat. He obviously had not realized that there must be two sides to everything—especially lightings. There should be a shadow side and a high-light side. And unless you want an extreme "Rembrandt lighting," which has detail only in the high-light side, with jet-black shadows, the shadow side should not be absolutely shadow, but lit to about half the intensity of the high-light side. Mr Cohen's scene is flat because both sides are almost identically illuminated.

There are many things which can be done to improve such a scene. The simplest thing would be to move one light closer in, and the other quite a bit farther out. (Figure 3) That would give the proper balance between the shadow and high-light sides. Or, you might put a diffuser on whichever of the two lights was illuminating the side chosen for the shadow side. A diffuser is easily made, it is simply a screen of muslin or tracing-cloth stretched over a frame that can be hooked over the front of the lamp.

Still another expedient would be to bring the left-hand light as close to the centre as possible, and close to the subjects, and to place the right-hand lamp beside the man, and a bit to the rear, in order to secure a back-light effect. An even better lighting of this type would be to use the two 1000-Watt Inkies somewhat as Mr Cohen did, but with the right-hand one quite a bit closer in and a bit to the side, and the left-hand one carried back a bit, and both with diffusers. Then, an undiffused 500-Watt lamp used as a back-light would complete the set-up. (Figure 4)

Lighting a Long-Shot

Returning again to Mr Cohen's letter, he says, "I was disgusted at that one so I got a few smaller light units. For a bridge-party scene I made the following set-up. (Fig. 5) The result here was worse. The space in front of the players was underexposed—black, in fact. The face of the hostess, standing, was overexposed, a blank, white area. The result cannot be blamed on the limitations of the reversal process as DuPont Panchromatic negative stock was used and processed in the usual manner of the professional."

I'm afraid that here I cannot agree with Mr Cohen. His arrangement of the lights shows considerable improvement. He is on the right track, too, in using several, smaller units for illuminating his long-shots rather than a few large ones. But I do not feel that he is on the right track in his desire

(Continued on Page 37)

Cutting the Cost of Amateur Filming

by **J. P. LAWRIE**

FROM the beginning of summer and onwards, sometimes even well into the winter, the correspondence columns of the popular and serious photographic press are enlivened by a snowball series of howls from the users of sub-standard cameras.

These letters, from folks who declare that their hobby and pastime of movie making is curtailed by the exorbitant cost of the sub-standard films, have had, and will have, but little effect upon the makers of the film. In these days of so very keen competition the manufacturer who could profitably reduce his prices would—there is no doubt of that.

A brief survey of the situation reveals the easily seen fact that the cost of sub-standard film not only limits the activities of many movie camera owners, but seriously limits the number of people owning such cameras. (This point strengthens the above statement re makers reducing prices if possible.) On the contrary, the number of projector owners is legion.

Therefore, until a wave of national prosperity so enlivens the sale of films and cameras, or new methods of manufacture enable the makers to reduce prices, owners of home movie cameras must put up with the cost of film and determine to run the apparatus as economically as possible.

The obvious ways of economy lie, of course, in expert handling of the camera, in elimination of unnecessary shots, the limiting of footage to various scenes and titles, etc., etc. The not quite so obvious ways of cost reduction come to light when thought is applied to the subject and the resultant ideas put into practice.

Despite the most careful and economical handling of the camera, the expense of filming will remain, for the average purse, fairly high. The only way to reduce this is to make the camera earn its keep.

The means of accomplishing this are many and varied, for instance in the summer (or what passes for it) many owners of projectors would more than welcome a film taken on one of their days in the garden, on the river, tea fight, or race meeting, etc., would cheerfully invite the camera owner to such an affair and pay well for the completed picture.

Many special events at the houses of the great and/or wealthy would produce quite good profits, an eye kept on the local paper will inform one of the people, place and time. The novelty of the idea will appeal greatly to the host and the odds are that interested guests who happen to be well featured in the film will become desirous of copies. There is, of course, always the possibility of a fair return from the sale of passable "Stills" from these films.

Again, many business houses would respond to the suggestion that a film be made of one or more of their processes, a view of their offices and factories, etc. One can quite anticipate that the big boss of the place has a projector of his own, and a few feet exposed whilst he deals with big business in the office will flatter his vanity and prove a sure seller, bringing relatively large profits to the enterprising camera man.

If the big boss hasn't a projector, maybe your suggestion of a film will interest him. Now here is profit for you if you can tie up with the local dealer and pull off a few sales. By the way, you need have no hesitation or doubt when pushing forth the idea of making a film, whether it be to police, business or professional men, military or drapers—**everyone** is interested in films, and it's a subject you know, or you'd not be keen on it!

Have you explored the possibilities of your own camera and projector combined when you hunt the elusive £ S D? Can you see profit in taking a few feet of the crowd fighting to get into Blanks the Drapers at sale time, fixing up the film as a continuous band, adapting the projector and hiring it, with the film and screen to Mr. Blank for a while? Tell Blank to display it in a window suitably equipped with peep-holes to view. If you let the crowd see you take the film, Blank's publicity is assured as is a handsome recompense for you!

A little thing will produce a flood of such really workable ideas. Here are a few suggestions which can be followed up, and which will doubtless suggest other and better things to do.

A film of the local M. P. spouting at an open-air meeting will be a sure seller to him. (Idea, keep the camera busy during elections!) Attend wedding funerals (be careful here) and the local Chief of Police reviewing the constabulary. The fire brigade put up a good show at times and there are always local processions, fetes, etc. You may be sure that one or the other of the leading lights of these kindred affairs has a projector, in any case it is well worth asking.

Have you a Territorial camp near you this summer? If so, interview the C. O., get shots of the Church Parade, the Field Day, Sports Day and the grand inspection by the visiting General. Secure a few feet of Kit inspections, potato peelers etc., in fact cover every aspect of camp life, not forgetting humor whenever possible. Edit this carefully and produce the finished film showing the life of a soldier at camp. You are certain of selling this to the Commanding Officers as a recruiting film. Odd bits such as the top company changing guard, etc., can be sold to the various platoons. Any good "Stills" you can show will sell like wildfire to the troops.

Furthermore, you are almost certain to be commissioned to project the film at various times—usually at dinners, suppers and dances. Rather nice, isn't it—a jolly army "do" and ten or twenty shillings in your pocket afterwards!

And the result of all these efforts? Why, greater skill in your movie camera craft, better ability in seeing pictures that tell, and last, but not least, a very substantial cash balance to help your own movie expenses.

Of the friends you will meet, of the good times you will have, of your greater interests and joy of living, on these items one can put no price.

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Filmo Topics

THE amateur movie maker will always find much of interest in Bell & Howell's clever little publication, Filmo Topics, which that organization issues monthly in the interest of users of 16 millimeter equipment. This magazine will be sent you free if you write The Bell & Howell Co. at 1848 Larchmont Ave., Chicago, Ill. In the September issue will be found

Editing Your Summer Films,

Helps in Scene-Planning. Advance prepartions which insure better travel films;

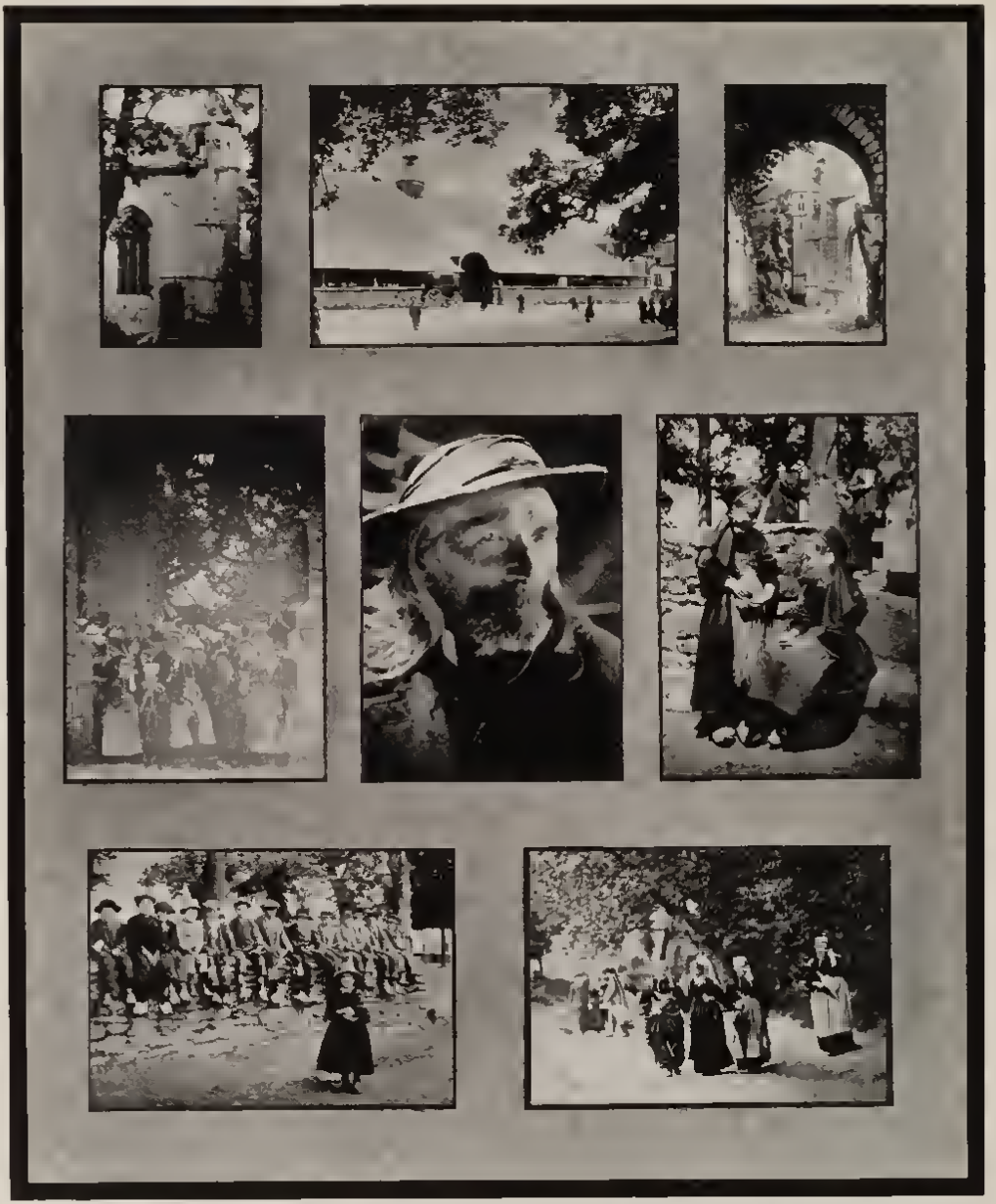
Magic Wishes. A child film scenario of simple stopmotion trick work;

Stills From Your Vacation Films,

Filmo News Pictorial,

Seasonable Hints Department;

Contributor's Column



Upper left, St. Barbe; upper center, Merhet Hell, Le Facuet; upper right, St. Barbe; left center, Shelter in the Belfry, center, A "vieillard" known to all artists, right center, Discussing the future of the race, lower left, Who said "Men shortage"?, lower right, Returning from the "Pardon".

Babbling About Brittany

by **LAWRENCE GRANT**

This is the sixth article of an unusually interesting series which Mr Grant has written for this magazine The next will appear in the October issue —Editor's Note

LE FAOUET Now just how do you think we are going to pronounce that? I feel sure that most of us are going to be deceived, that we shall drop the final T, believing it to be silent, and say "Le Fah-oo-a" This is one of those words with which the French catch the unwary, like the words —"dot" and "lot" for we must say —"Le Fah-oo-ette" and the final syllable just as the English insist on pronouncing the simple word "ate" They do not say 'ate" as we do over here, and as it would seem to be natural to do, they say "et,"—just that And I have found a reason for this, for if they were to say "I ate it," they might be suspected of registering an aitchless dislike for food, so to avoid misunderstanding they say—"I et it" Philologically wrong—but the meaning remains clear

To get here from our last resting place we should really have gone all round Finisterre and through Quimperle and Concarneau first, but we had to take a flying trip down here to be in time for the "pardon" of Ste Barbe It occurs on the last day of each June and should not be missed

We saw laundry work done in the river at Lamballe, but I forgot to say in the last chapter that, at Locronan, they wash their linen in St Ronan's Well It is also a place for prayer You can purify soul and linen simultaneously—this combination of the religious and mundane matters is not infrequent in Brittany

Ever hear of the woman who had a Bishop as a week-end guest? At the time of his first breakfast with her he expressed his gratification in having heard her singing "Nearer, my God, to Thee," while preparing the meal, and congratulated her on beginning the day in such a devotional spirit "O, yes," she replied, "I always do that when we have eggs for breakfast, two verses for soft boiled, three for hard "

On the day of the "Pardon" deputations from outlying villages carrying Crucifixes and Banners begin arriving in the square from an early hour in the morning A group of Locronan priests and choir receive them, and greet them by touching Crucifixes lightly together, while a thurifer swings a censer and a priest speaks a welcome, and the choir chants the 'Brittany hymn" Very attractive is this old custom I saw nothing like it elsewhere

Now here you can see why I chose the title for these ramblings,—I am not tied down to any rules, literary, geographic or chronological If I forget something I can dart back to it at anytime later on when it occurs to me

I ought to have said in the first chapter I suppose that the reply to so many people who ask why it is called "Brittany," a name so like "Britain," is that, while originally it was "Armorique" or "Armorica," about the fifteenth century (I think) many Celts came over from Britain and settled, so the name became Brittany

But "revenons a nos moutons," or, let us leave Locronan and get back to Le Faouet —and to "Veuve Couillard" "Proprietaire de l'Hotel de la Croix d'Or et des Touristes Chambre noire pour photographe, ateliers pour artistes peintres, salles de bains aves douche —Telephone, numero Le Faouet 3,— Recommande du Touring Club de France"

"Veuve Couillard" may I bracket you with another "veuve" —' Veuve Clicquot" for surely your "souffle au fromage" is as light and frothy and delectable a thing as her best years vintage The one a compliment and complement to the other

Dear old widow, I salute you, even though I fear I should add R I P for you were old when I knew you

I look at my "addition" written in your own angular hand writing and I find myself naively described thus —

"Hotel de la Croix d'Or"

M Chambre no 15 doit

and the daily figures thus.—

1 chambre	2 50
1 petit dejeuner en chambre	1
1 dejeuner	2 50
1 diner	3
	Frcs 9

Less than $2 a day when the franc was only 20 cents!

You blessed old souls, and some young, of the French village Inns, both "veuves" and "mariees" are any of you left in your simplicity and adorable hospitality—even though it be dispensed at a price which you jealously look after

Mere Poulard at Mont St Michel,

Veuve Couillard at Le Faouet

Madame "Julia" at Pont Aven

Veuve Daniel at Guingamp.

Hays-Cogneau (Friend of Sarah Bernhardt) at Auray

Laurent at Rosporden

These come to my mind at random If I should go to a strange village and find two hotels, one with a "veuve" in charge and one with a "patron" I should, without disparagement to "Monsieur," unhesitatingly select the one with the lady in charge

A book should be written on these women, but this is beyond babbling and sounds like anecdotage

At Le Faouet is, I believe, the finest market hall in Brittany I hope it is being properly preserved, it was perfect when I saw it, but just ready for restoration if it was to be kept in first class condition.

Its proportions are so splendid as to be an eternal joy to architects and artists, its wood work and "joinery" a lesson to carpenter-builders; its position in the great square a model for City planners, and the costumes of the crowds, and the colors of the fruit and vegetables on market day a delight to the eye

Market day at Le Faouet is a lovely scene, and many French and English artists have immortalized its beauty.

There is great difference between summer and winter costume The winter cap is shaped like a judge's or an advocate's The material always black, and the back part continuing down over the shoulders into a three cornered cape which protects from wind and rain

In the coming generation there would seem to be no danger of "man shortage" in this district, at least as far as one girl is concerned Note the apple in the hand of Eve, and the line of waiting lads "The line forms on the right '

St Barbe is about two kilometers **walk** from the hotel The black face mean that you really do walk because there is no other way of going up and down the dales and woods to the hill top where the chapel is

Who would want any other way? In the morning you are up early-ish and chatter and exchange news with other walkers all the way; and in the twilight evening you have found someone to stroll back with in the dark woods where the moonlight can't penetrate and then there is no need or desire to hurry!

The "Guide Joanne" says —"On sort du Faouet par une ruelle qui s'ouvre au N de la Place des Halles (a la maison d'angle, Statuette de la Vierge" If the Virgin were removed by the house owners the instructions would be as useless as a road sign was in England

In 1922 some Americans touring in England and on the way to Mere-on-the-Ouse-by-Little-Moseley found a sign at a cross road which said Mere-etc-etc was 5 miles away and it pointed to the left So they went that way and when their speedometer registered 6 miles they asked a yokel what was wrong "O," said he, "Mere-etc-etc is 11 miles in the other direction"

But they told him that the sign post pointed this way, "O," laughed he in glee and in answer, "that catches many a visitor, that does Y see we turned it the wrong way during the war to deceive the Germans, and we ain't got round to putting it back yet"

However, the guide goes on—"qui descende dans un ravin, il remonte ensuite—traversant tout droit la plateau—on arrive —a la maison du gardien—qui a les clefs de la chapelle (pourboire.)

(**Pourboire**). That's what I was coming to Isn't that nice? You are not in any doubt. You do not feel any delicacy in this matter You are not terrified of hurting the feelings of the last of a long line of Breton knights in armour. A tip is in order A tip is expected A tip is the thing to do. In fact it practically says—"No tip—no Clefs"

This "gardien" is a well-known character He is chapel sacristan. He is a linen weaver. He weaves that lovely coarse pale buff colored linen from which "Brag-o'-bras" and the table cloths such as those used at the Riverside Inn in California are made He also spins yarns to all who will listen He is an artist's model And on "Pardon" days he turns his place into a restaurant. His loom is a lovely thing His linen perfect He shares the rooms, while working, with his poultry who hop about from beam to beam of the loom, and from warp to woof of his linen, crowing, cackling, and behaving in other and more embarrassing ways round and on his machine and his product, and with his two pigs grunting and sleeping at his feet

Pausing now and then to light and smoke his pipe. Do look at the pipe The briar beside it is rather a small ordinary American pipe The Brittany pipe is of black clay, three and a half inches long, and the bowl just large enough to make a cigarette holder. Smoked as they do, it holds about five good draws of tobacco.

Just beyond is the Church, only just visible though, for it is built below on the side of the hill, and the steeple or tower is only the height of the plateau of the hill

There is always some reason for these remote churches and their frequent peculiar location or manner of building

This is erected on the side of a mountain near the top because in 1489 the Lord of Tolboudeu when hunting was overtaken by a storm Above him an enormous piece of rock loosened by the rain started rolling down towards him He hastily prayed to Ste Barbe to save him and promised to build a chapel in her honor on the spot of he lived Instantly the descent of the rock was arrested, caught by some tree trunks

He more than faithfully fulfilled his vow. The Church is lovely.

On Pardon days they still sing his prayer —

"Ste Barbe et Ste Claire,
Preservez moi de la tonnerre;
Si la tonnerre tombe
Qu'il ne tombe pas sur moi"

There is a lovely flight of wide stone steps leading from the mountain plateau to the church Quite the architectural beauty of the place

At Le Faouet in the little general store I wished to buy some picture postcards of this. None was there, though some of every other spot Why? Well, she did use to have them, but they went so quick it was not worth while ordering them! Quaint idea of doing business But in 1918 I went into a big drug store in Sacramento, Calif, U S A at 7 30 one Saturday evening to buy three cans of canned heat of a well known brand And the proprietor said to me seriously as follows.— "We have none left If you want to make sure of getting them you will have to come in the early part of the day We are sold out of them every Saturday about five o'clock" (Ripley, I pledge my word to the truth of this story, word for word.) Now was there any difference in the business mentality of the old woman and the modern man?

It rained and rained on this particular Pardon day. The climate of Brittany makes England seem dry And I had to use cameras under an umbrella all the time The majority of readers of this particular magazine will know that while I made quite good motion pictures under such conditions, still photography suffers very much

The reason, for those who do not know, one is projected and has the powerful light to give it contrast and brilliance from reflected rain drops, etc The other has no help from the paper print

Off to Baud for the Pardon of Notre Dame de la Clarte with bonfires everywhere Very picturesque, but need not linger on it, I have briefly referred to many as we came along in these babblings, but am reserving more detail about them till we come to the last and best at St Anne d'Auray, and anyhow, here at Baud there is something far more alluring, a little place so little that I have never yet met anyone among my friends who has discovered it, though of course some enterprising souls do find it, yet it possesses by far the most interesting and unusual Saint, if Saint she can be called, in the whole of Brittany, and probably in all France

For, after being saturated, almost satiated with Christian cathedrals and Saints and Holy relics, here we are confronted with frank and unabashed Paganism.

Standing high on a hill, above an orchard, as befits her name and reputation, is a statue of no heroine of history, no Saint of Holy Church, but Venus herself The Goddess Of Love, none other, not even masquerading under any euphemistic name, but boldly and shamelessly known as;—"La Venus de Quinipilly"

Actual origin unknown Frankly pagan, yes This statue, or one similar, has stood here from time beyond any local record of origin The statue you gaze on now is not the original. The ecclesiastical authorities did not approve of the original, and though there is no exact knowledge of what it was like, sufficient is known to understand that it was an offence to clerical eyes, however alluring to the younger set The clerics, afraid to forcibly remove a figure so ancient or so venerated, caused it to be surreptitiously thrown off its pedestal from time to time But each time the peasants put it back Broken a little more at each fall, it finally became a wreck But in such esteem was it held, especially by young women just married, that when it was hopeless to try to replace the original, they had another made This, as our "Guide" says discreetly, was no doubt "un peu modifiee" from the old one and so the Clergy let it stay

It is an Egyptian figure representing Isis, a Venus of really more reprehensible attainments and character than the Latin Goddess

She presides over human fertility To her garden come her suppliants at night They stay all night They lave themselves

(Continued on Page 45)

Upper left, La Venus de Quinipilly; upper center, Entrance to Her apple orchard, upper right, Aphredite herself; left center, "Who said camera?"; center, An ordinary pipe and A Brittany clay; right center, The Women and the Well; lower left, La Vierge de la Reche; lower center, La petite Deveuee, lower right, Ho goed as a windmill, but makes a lovely cottage.

The "Little Fellow"

(Continued from Page 17)

jubilantly returned—blissfully ignorant of the fact that each had bought the other's cast-off printer!

Our studio equipment—and the 'studios" themselves—were equally amazing. The first studio (what a pretentious name for such a place!) was a room twelve feet wide, by twenty-five feet long. Our lighting equipment consisted of two 60-Amp. arcs, which we ran, perforce, on Alternating Current. The sets were painted canvas "flats". We would start in the morning making long-shots on one set, and then, as we required other sets, we would move them in in front of the first one, until by nightfall we were making closeups, with the room jammed full of "sets". For real "production value" we would sometimes manage to wangle our way into some private home. A few years later we managed to get a slightly larger barn for our studio, and to get more lighting equipment: two more arcs, and a spot light. A **real** spot light! How proud we were of it!

Actors were another problem. We had to use whatever we could pick up locally. Usually, they were none too capable, even the best ones would hardly give a Hollywood extra anything to worry about. As a rule, we would just get our people trained to the point where they were not too obviously bad—and then we'd have to stop using them because of the frequency with which they had appeared.

From all of this it might be guessed that the commercial film business was rather precarious. It was! How some of us managed to survive will always be a mystery to me—but we did it, somehow. Our chief revenue came from making short advertising films for the local emporiums. Some of us made local newsreel supplements for the local theatres or newspapers. Sometimes we would manage to land an order from some big local firm, like a railroad or oil company, for a reel or two. Once in a while we might make a few hundred feet of personal films—such as one does now with one's own cine Kodak—for a local millionaire. A few of us, greatly daring, would occasionally promote the making of a two-reel home talent movie, sponsored by some theatre, or paper, or the like. All of us optimistically "covered" every event that might possibly be of national interest or importance, with the hope that the national newsreels might use it, even if they didn't, they'd return the developed negative to us, saving us that expense! And a few of us—the luckiest—might actually be on the staff of some newsreel as the local representative.

But, principally, our work was making ad films for the local merchants. We went about it this way: we would contact with the theatre-managers for the use of their screens for advertising. Then we would approach the merchants and contract with them to make film ads for them, to be shown in the theatres we supplied. Then we made the films. They were not what you could call tactful, sugar-coated advertising. They couldn't be, for they only ran about fifty seconds each! At first, we would use as many of these units as possible, later we restricted them to about half a dozen or so—and raised our prices for this refinement.

During the last few years, tremendous changes have taken place in the industrial end of the film business just as they have in the studio world. Perhaps the most important of these changes have been the consolidations, mergers, and new capital which have greatly benefited many of the industrial firms. Then there has been the advent of sound. This has spurred the mergers, because of the cost of sound equipment and sound production, which is too great to be borne by a small outfit. Furthermore, it has introduced technical and artistic problems that are not even solved yet. The running time of these ads—seldom more than a minute— is hardly adaptable to the use of dialog. On the other hand, it is difficult to make them longer without running the risk of arousing public resentment. So at present we are making our films short and to the point, beginning each reel with a sound entertainment short, into the middle of which we work our ads, with the music or dialog of the first part continuing under it, and then ending with the finish of the entertainment part. Due to the nature of our ads, we usually record our sound on film, which makes it easier to dub in on our ads.

The firm with which I am now connected, the M P A Studios, of New Orleans, is quite typical of the larger, present day commercial film firms, though there still exist many of the independent "little fellows". Our firm does business all over the country. We have really modern equipment—Bell & Howell and Mitchell cameras, Mazda lights, and a stage almost as large as one of those used in Hollywood. Our sets are no longer painted drops, but well constructed settings. Our lights and lightings are beginning to compare quite favorably with those of Hollywood. Our sound, though very rarely recorded at the same time as the picture is made, as we use synchronized narrative and musical accompaniments almost exclusively, is surprisingly good. In short, we are getting to a point where we can really turn out films of professional quality.

The latest development is the change to natural color exclusively. Color has been found to enhance the appeal of our films tremendously. Now that there are color processes all over the country commercially available, at reasonable cost, and capable of really good results, the industrial producer should, by all odds, take advantage of the increased appeal that they give.

So, although the "little fellow" still exists, his prospects are steadily brightening, and he is slowly drawing nearer to his rich relative, the "big fellow" of the Hollywood studios.

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Vitaglo Corporation Offers Excellent Facilities for Making Talking Pictures in Chicago Studio

STARTING not so long ago in the business of manufacturing portable sound equipment, the Vitaglo Corporation of Chicago now has turned to the active production of commercial motion pictures, and according to this company's very attractive brochure is prepared not only to do all kinds of commercial work, but is ably fitted to make special scenes for New York or Hollywood producers who want to make certain sequences in and around Chicago.

The Vitaglo studios, according to the announcement, are adequately sound-proofed, making possible the making of pictures of as fine a quality as in any studio on the East or West coast. The lighting equipment consists of 35 units with a total of approximately 300,000 watts. A complete carpenter shop is prepared to construct desired sets; completely outfitted dressing rooms are provided for players; a projection room with complete sound equipment is available, and one day emergency service is guaranteed. The studio is also equipped to furnish natural color along with sound, and has its own developing and printing laboratory. A complete staff of cameramen and sound technicians is maintained, and Mr. A. B. Chereton, of the Vitaglo organization, claims they have the best equipped studio between New York and Hollywood.

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Society of Motion Picture Engineers to Hold Fall Meeting at Swampscott, Mass., Oct. 5 to 8

THE fall meeting of the Society of Motion Picture Engineers will be held at the New Ocean House, Swampscott, Mass., October 5 to 8, according to an announcement made by the Board of Governors following its meeting held in Schenectady last month.

Amateur Movie Making

(Continued from Page 30)

for greater illumination—and detail—in the foreground To me, the important action of the scene is that which takes place on the bridge-table, and all the unessential details of the mass of chair, table, and feminine legs in the foreground would tend to distract attention from this more important part of the picture In addition, the dark foreground contrasting with the well-illuminated middle and backgrounds, gives an illusion of depth to the picture Still, if one does want this foreground detail, the only way to get it is to put more light onto it Of course, the way one would do this would naturally be dictated by the equipment available Perhaps the easiest way to do in this case would be to add one 500-Watt lamp on the right-hand side, as close to the centre as possible, and placed rather low down One of the pair of 500-Watt lamps at the left front could also be placed low, to good effect Then, with more light on the foreground, the scene could be printed lighter, and the high-lights on the hostess' face would not be so washed out

Faster Film

Another great help in this type of work is the use of the new Fast Film With it, a much larger area can be illuminated with the same amount of lighting equipment, furthermore, the more sensitive emulsion can utilize the spilled light which the older film wastes For the professional, spilled light is often quite a problem, but for the amateur, it can be a great help, as it can be used to lighten otherwise unrelieved shadows Most amateurs are by now probably quite familiar with Fast Film in its reversal form—the Eastman Super-sensitive reversal stock, but many of them are quite unaware that it is likewise available in 16 mm negative form—the DuPont 16 mm Special Panchromatic Negative This is coated with the identical 'Fast" Panchromatic emulsion with which the DuPont 35 mm "Special" (or Fast) Panchromatic negative used in the studios is coated

In addition to the faster film, faster lenses are always beneficial to interior workers Mr. Cohen's camera, like most of the early Victors, is probably fitted with an f 3 5 lens This is all right for exterior use, but for interiors a faster lens—say f·2 5 or f·1 9—is not only useful, but almost essential With the faster films now available, and the amount of lighting equipment that Mr Cohen has used, f·3 5 is quite alright for close-ups and medium shots, but for such shots, with fewer units, or for long-shots covering larger areas, the faster lenses are essential, for they only are able to fully utilize all the light falling on the scene Furthermore, the combination of fast film and fast lenses makes it possible to use the ordinary house lights for additional lighting effects With this combination of lens and emulsion, it is uncanny what can be accomplished with only a few ordinary 50-Watt or 100-Watt bulbs, while with slightly large ones—200-Watts or thereabouts—the possibilities are tremendously increased, and when these are combined with several of the regular 500-Watt and 1000-Watt home movie lighting units, almost anything is possible.

25 Years of Progress

SEPTEMBER, 1931, is a month that means much to the C P Goerz American Optical Company, and we are pleased to print the following message from that organization

'This month, the C P Goerz American Optical Co celebrates the 25th Anniversary of its incorporation as an American manufacturing concern and takes this opportunity to thank its numerous clients for their consistent and unwavering support.

"Established in 1895 as an American branch of the famous C P Goerz Optical Co , of Germany, the manufacture of these celebrated lenses in the United States commenced in 1898 Thru its incorporation under an American Charter, in 1906, it became definitely established as an American business

"Thruout this period, there has existed in the management, in the executive staff in the workers, the deep-rooted conviction that an optical business to succeed must necessarily be more than a mere business enterprise—that it must be inspired by high ideals of workmanship—by standards of endeavor which due to the nature and difficulties inherent in scientific manufacturing, must be precise and inflexible

"A lens is frequently a life-time possession Its defects are a constant source of annoyance, its fine qualities assure lasting gratification Bearing these facts in mind, the C P. Goerz American Optical Co has ever been the severest critic of its own work, subjecting its entire output of lenses and optical instruments to a rigid inspection and rejecting any constituent part which thru some flaw in raw material or defect in construction, could not come up to preconceived standards

"With every assurance that this policy inaugurated 35 years ago and adhered to until the present time, will be continued in the future, we again thank our clients for that fine co-operation which has made our success possible"

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Who's Next?

THE FOLLOWING letter speaks for itself If anyone can bring on a smaller house, let him come

Hal Hall, Editor,
American Cinmatographer,
1222 Guaranty 8ldg ,
Hollywood, Cal
Dear Mr Hall-

I just happened to be looking over some of my back numbers of the CINEMATOGRAHER, when, in the November, 1930 issue, I came across an article whereby L C Pearson of the Northern Electric Company had discovered the smallest talkie house The theatre seats 240

If I may make a correction, I wish to say that this theatre which is in Canada, is NOT the smallet For I own and operate a talkie house that seats only 155 in a building which is 25 ft wide by 50 ft. long I run the best talking pictures every other night on Chamberlain Sound equipment, which is manufactured in San Francisco

Hoping that this may be of some interest to you, I am,

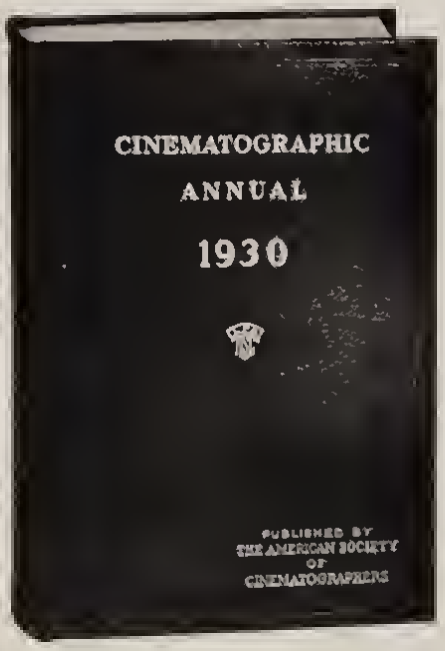
Very sincerely yours,
GOLDEN BEAR THEATRE
Pine Crest, Cal.
8y Richard L. Bare
Manager

A personal advertisement in the Cinematographic Annual will be read all over the world. There is still time to reserve your space—do it today.

The Last Word

for Professionals or Amateurs..*the*

CINEMATOGRAPHIC ANNUAL



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Hollywood California

Bei Aufragen und Bestellungen beziehen Sie sich bitte auf die American Cinematographer

Special Filmo Camera Model for Golf Pictures

A SPECIAL Filmo movie camera for taking golf pictures for instructional purposes is announced by the Bell & Howell Company This camera, which is known as Filmo 70-DB, has seven speeds—8, 12, 16, 24, 32, 48 and 64 frames per second—and is the same as Filmo Camera 70-D except that it has a shutter opening of 110 degrees instead of 216

"The advantage of this new Filmo model", says the announcement, "lies in the fact that normal speed and slow motion golf pictures can be taken with the same camera In teaching golf by motion pictures it is essential that the golf stroke be taken by slow motion in order properly to analyze a stroke and determine just what are the good and bad points It is also highly important that shots of a player in action should be taken at the normal speed of 16 frames per second in order to see his plays as they ordinarily appear Other speeds, such as 8, 24, etc , are desirable for certain special purposes, but normal and slow motion pictures are of prime importance

"For slow motion analysis a speed of 64 frames with the ordinary Filmo 70-D shutter opening of 216 degrees is entirely satisfactory except that pictures taken at the bottom of the stroke when the club is moving rapidly tend to blur The new Filmo model entirely overcomes this The 110 degree shutter opening "stops" the action of the golf stroke with the clearness of a slow motion camera taking 128 pictures a second A special model Filmo camera is available which takes pictures at 128 speed only but does not take pictures at normal speed The new 70-DB Filmo, by making it possible to take both slow and normal speed pictures with the same camera, renders it unnecessary to use two different cameras

"The new model Filmo at 64 speed uses only half the film employed when pictures are taken at 128 frames, and any unusual light requirements due to cutting down the shutter opening can be easily taken care of by employing the new supersensitive film, although ordinarily this new film will not be necessary

"When using the 70-DB Filmo at 64 speed on a bright sunny day during the summer months, between the hours of 9 A M and 4 P M , the lens can be set at F 4 with regular panchromatic film and at F 5.5 with supersensitive panchromatic film On a bright cloudy day in summer at the above hours the lens can be set at F 3.5 with regular panchromatic film and at F 4 with supersensitive panchromatic film "

Improvements in Moreno-Snyder Camera

IN the description of the Moreno-Synder non-intermittent cine camera which recently appeared in THE AMERICAN CINEMATOGRAPHER, it was stated that a purely optical method of forming the frame-line was being developed This is now said to have been perfected, and is incorporated in all of the cameras now in production According to Gabriel G. Moreno, the inventor of the camera, and Chief Engineer of the firm which manufactures it, this will completely eliminate the previous device used to form a frame line "Formerly," says Mr. Moreno, "We used a special pair of moveable flaps in the sunshade, which, though they gave us a frame line of a sort, were not perfect, especially as they had to be set anew for each scene We have now, however, developed a purely optical method of producing a frame-line (which must be artificially made in all non-intermittent cameras). Our new method has made the camera still easier to operate, and has at the same time given us an opportunity to rearrange certain of the optical units, thereby eliminating certain small aberrations which formerly existed, due to the photographic lenses having been calculated originally for use in conventional cameras Now that we have had the opportunity to obtain lenses with the special corrections necessitated by our supplementary optical system, our photographic tests have been so successful as to prove that the non-intermittent principle, as embodied in our camera, is both mechanically and commercially sound, and a real advance over the previous types of construction "

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Possible Inauguration of Chinese Talking Pictures

REPORTS are now circulating through Shanghai regarding the installation of sound producing equipment in five of the prominent Chinese motion picture studios, according to Commercial Attache Julean Arnold, Shanghai, China Of this number it would appear that three of the projects are definitely settled while the other two are still nebulous The equipment to be used in these studios is to be purchased in America and American cameramen and sound technicians are to be brought to Shanghai to teach the Chinese the intricate details involved in the production of satisfactory sound pictures.

Production schedules have not been announced but it is understood that a minimum average of twenty pictures per year is to be the skeleton framework on which future extensions of production are to be built Although it is expected that the next six months will witness the establishment of the Chinese talking picture industry American distributors maintain that the resulting loss of revenue will be small if any, as the expected increase in theatre sound installations will tend to minimize excessive competitive factors

A group of the new Raytar lensas, recently placed on the marhet bv Bausch & Lomb The Mitchell Camera Corp is the Hallywood distributor.

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New Portable Projector Put Out By Arc Products

A PORTABLE projector for black and white or natural color, adaptable for sound on film or sound on disc, has been placed on the market by Arc Products Corp , new equipment company, which has just established headquarters in New York Known as the Vocolor projector, the equipment can be assembled or disassembled in five minutes, and will pack in two compact rectangular containers with a combined total weight of less than 160 pounds, so that one man and a small car can handle it for any distance or purpose, the company states.

Among features claimed for the Vocolor projector are long range "throw," showing color pictures as large as black and white, complete flexibility, enabling change from color to black and white, or vice versa, at will, normal speed of projection for color, same as black and white, low price of machine

The appartus is of simple construction, and the small number of parts means greater ease of operation

A 16 mm Vocolor camera and projector also are put out by Arc Products Vocolor is described as a simple process which takes color pictures on ordinary black and white panchromatic film through rotating color discs in the camera and projects through corresponding discs in the projector.

Movies In The School

The B & H Filmophone presenting a sound film entertainment in the auditorium, Haven High School, Evanston, Ill

Keasbey & Mattison Co. Markets Sound Screen

A NEW sound screen marketed under the trade name of "Visibestone," consisting of a series of rod-like filaments, the shape and angle being based upon complicated mathematical formulae, has been introduced by the Keasbey & Mattison Co , asbestos manufacturers of Ambler, Pa

While complete stereoscopic vision is not claimed for this new screen, the rod-like texture of the Visibestone screen is said to lend unusual depth to the projected picture, while the scientifically compounded mesh permits greater and more even sound filtration It is also pointed out by the manufacturer that the new screen very definitely corrects distortion of both sight and sound This correction is attributed to the special weaving and rod-like texture of the screen Light is evenly reflected from the round surfaces of the asbestos threads into the remote angles of the auditorium

Being basically fireproof, the liability of fire and consequent panic in the theater is greatly reduced, since there is nothing in the Visibestone screen to ignite or smoulder and give off poisonous fumes or noxious gases to alarm the audience, the company declares

The new screen is being distributed by the National Theater Supply Co

◆

Decline in Berlin Entertainment Tax Returns

ENTERTAINMENT tax returns in Berlin for the month of June show a further decline of business, according to Trade Commissioner George R Canty, Paris, in a report to the Department of Commerce

Total tax receipts for this period amounted to 602,000 marks, as against 670,000 marks for the corresponding month of last year.

It is further stated that forecasts for July made by the officials concerned for tax perception seem to indicate that a record low level will be reached In July, 1930, receipts amounted to some 529,000 marks, but this year it is feared that they will not be far from one-third of this figure The important number of entertainment establishments closed in July is a further indication of the present depression

A Portable 35-mm. Projector

(Continued from Page 151)

the motor through the motor switch and is wired in parallel with the two plugs F One of these plugs is used to feed the amplifier 110-volt A V, and the other for an extension lamp or any other device requiring 110-volt A C At C is shown the exciter lamp feed receptacle, and at H the receptacle previously mentioned, into which is plugged the A C line for feeding the projection lamp All of these receptacles and the wiring connecting them are mounted in a complete assembly J, and all connections from the lamps and motor are made on a common panel board beneath the bakelite cover K

Any current-carrying part may be readily removed by disconnecting the wiring at its particular terminal on the panel board, and the entire panel may be removed by disconnecting all of the wires from the various current carrying parts which are connected thereto, and removing the four nuts L

The projector may be readily tilted to any desired angle by adjusting the tilting nuts The upper and lower magazines may be easily removed by loosening the screws The entire equipment, with magazines removed, may be packed in a trunk properly built to receive it, and the entire assembly weighs approximately eighty pounds

None but the finest materials and highest grade workmanship are employed in the construction of this equipment and the International Projector Corporation feels that it can point with pardonable pride to this achievement

◆

Western Electric Installations

C. W BUNN, General Sales Manager of Electrical Research Products, announces the following large list of recent theatre contracts for Western Electric installations —

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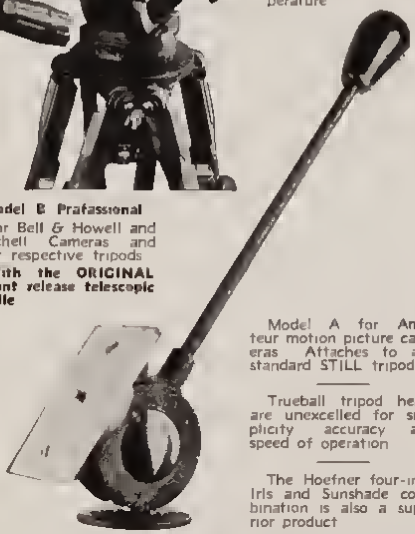

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THE AMERICAN CINEMATOGRAPHER

New Devices at RKO-Pathe

TWO inventions which promise to revolutionize construction methods in the making of motion pictures and which, at the same time, will save the RKO-Pathe studio thousands of dollars annually, have been put into operation at the Culver City studio

The unique devices, designed and manufactured by David S Garber, head of the RKO-Pathe studio construction department, are portable spotlight platforms and their installation on the stages of the "lot" has solved a technical problem which for years has bothered the mechanical brains of the industry

Increased efficiency of fully forty per cent and an actual saving of approximately $60,000 per year on the studio's operating expenses is, according to Garber, anticipated with the adoption of the new devices

The problem of motion picture producers in lighting an interior set has always been two-fold to save electricity and to salvage as much lumber as possible from the scaffolding and rigging necessary to support the giant batteries of overhead lamps

In the past, these overhead lamps have been secured on immobile platforms suspended from the rafters of a stage by timbers Every set required specially built platforms As a safety measure the lamps were fastened by drilling holes in the platform floor and inserting the bracket-rod of the lamp This meant that the average life of this same platform was four sets after which it was cut up into tiny bits or used for building fires

The lives of Garber's device, however, are unlimited because of their portability Now a part of each stage's standard equipment they are merely rolled up to or slung over a set ready to be moved at a moment's notice

The first movable platform is one which never leaves the floor On rollers, it can be pushed alongside of a set by one man, and through wing-nut adjustment, raised or lowered to any desired height On the top of the upright is the platform floor proper, unique in itself Instead of the old-fashioned planking through which holes had to be bored, now is found a section of pine ribs twelve feet long and four feet wide On the bottom side is a heavy netting to prevent tools, nuts, bolts and the like from falling through At each end of the sections are joints which allows stringing the platforms together to reach any given horizontal distance Instead of drilling holes in the platform at will in order to sustain the lamps, the holes are permanent, both sides being lined with them at three inch intervals

The second platform is identical in design as the one described above but instead of being rolled about on uprights it is suspended from the rafters of a stage Instead of the old-fashioned timbers which rendered the platforms immobile, Garber suspends his by means of chains Attached to the chain-ends are safety hooks which are placed on the rafters at will and which are instantly removable

The suspension platform will cope with any given height and this is obtained by block and tackle at both ends of the platform.

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Amkino Will Distribute 30 Soviet Productions

OUT of the entire output of motion pictures to be produced this year in Soviet Russia, 30 have been selected for American release by L. I Monosson, president of the Amkino Corp The number is eight more than Amkino has handled in past years and is due to the increasing popularity of Russian features of an entirely different make-up than American or other foreign productions, according to Monosson The films have been selected from the whole production output of 12 motion picture companies in Soviet Russia

Moreno-Snyder Camera Makes High Speed For Trick Shot

ONE of the most gruelling tests that a standard camera has ever had to face was encountered by the new Moreno-Snyder non-intermittent camera recently. According to Senor G. G. Moreno, Chief Engineer of the Moreno-Snyder Camera Company, the camera—a standard model, designed for operation at the normal speed of 90 feet per minute—attained higher speeds than have ever been attained by any practical commercial cameras heretofore.

We were recently surprised," says Senor Moreno, "by receiving a call from the RKO studio, asking us if our camera was capable of speeds of 500 feet per minute or more. Inasmuch as some of our own tests had shown that the camera would operate at nearly double this speed, we replied affirmatively. We were then asked to bring the camera to the studio, where Mr. Knechtel, the head of the Photographic Effects Department, was having difficulty in making some ultra-high-speed shots for some trick work he was doing. When we reached the studio, we found that the subject being photographed was a series of wave-forms in a pool of mercury, which waves were produced by high-frequency electrical vibrators. Mr. Knechtel had used the highest speeds possible with the conventional speed cameras available, but had not been able to slow down the vibrations sufficiently for his purpose.

"We began with our camera running at a speed of 500 feet per minute. This was not enough, so we progressively increased the speed to 600, then to 800, then to 1000 feet per minute. The results were photographically successful, but the speed was still insufficient to produce the desired result. Finally we decided to speed things up to the limit of the resources available. We took two Mitchell overdrive-gearboxes, coupled them in tandem, and drove them with a high-speed motor. The result was that the camera ran at a speed of 1440 feet per minute. This tremendous speed was at last sufficient to give Mr. Knechtel the effect he desired, and he expressed himself as being greatly pleased with the results obtained, saying that they were not only photographically perfect, but despite the high speed, rock-steady.

"For our own part, we were very gratified at being able to subject our apparatus to such a severe test. It placed a particularly great strain upon the rotary, optical shutter, which revolved at a speed of 3000 revolutions per minute. After having photographed in excess of 6000 feet of film at this tremendous speed, we dis-assembled the camera, and tested the alignment of the lenses in this important unit—despite the terrific strain, not one of them had been displaced so much as 0.001 of an inch.

"Another interesting sidelight is the fact that although we used only f:3.5 lenses, the exposure—even at this tremendous speed of over 400 frames per second—was, thanks to the non-intermittent principle, sufficient so that we could use positive film!"

◆

New X-Ray Camera

A NEW X-ray camera which shuts off automatically when it has just the right exposure for a perfect picture is reported to have been perfected by a European scientist. The camera has an X-ray backstop behind the picture. This backstop catches the rays after they have penetrated the film, and measures them by ionization in a partial vacuum. It is set so that when just enough rays have passed to make the film perfect, the backstop automatically switches off the electric current to the X-ray tube.

The film can be set for any exposure desired. The radiologists said the device is highly valuable for treatment of diseases where success depends upon viewing internal organs with X-ray pictures. Often a slight darkening of otherwise normal shadows tells the story of the disease. There has been some difficulty in distinguishing diseases from mere uncertainties in exposure.

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f:2 As a general purpose lens, the Xenon f:2 is unrivalled. Stopped down, this lens affords exquisite definition to the extreme field margin. Evenness, depth and absence of flare characterize this high-speed motion picture lens.
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Bell & Howell Handling Da-Lite Portable Bead Screen

THE Bell & Howell Company has announced that it has added to the FILMO line of 16 mm movie accessories the famous Da-Lite Portable Bead Screen in a variety of models to cover every possible use, and at an entirely reasonable price

The manufacturers of the Da-Lite Screen have for twenty years specialized in the making of motion picture screens. Da-Lite Screens are to be found to-day in a large majority of the world's finest movie palaces. From this long experience comes the theater efficiency of the portable Da-Lite Bead Screens which the Bell & Howell Company is now offering to the amateur.

The Da-Lite Bead Screen surface is a layer of very small glass beads superimposed on a specially prepared fabric by a Da-Lite process that insures maximum reflection, pliability, and portability. The Lazarus patent No 1,399,566, issued 12/6/21, covering beaded screens is owned and controlled by the makers of the Da-Lite Screen

All of the Da-Lite Bead Screen models here announced are either of the folding or rolling type, in which compactness has been achieved with wonderful ingenuity

Da-Lite Model A Screen

The Da-Lite Model A Folding Bead Screen is contained in a brown leatherette covered wood case, equipped with mechanism which erects the screen semi-automatically in thirty seconds. One motion erects it, and one more returns it to the box. Folding side arms fold into the box when the screen is closed, and a strong spring hinge in the center of the arms snaps them upright as the screen is raised. The jackknife feature of the Model A Screen is fully protected by the manufacturer under Patent No 1,800,627, granted 4/13/31

Da-Lite Model B Screen

The Da-Lite Model B map-style Bead Screen rolls up like a window shade into a metal case, which is hung horizontally, with the screen drawn downward for projection

Da-Lite Challenger Screen

The Da-Lite Challenger Bead Screen is a map-style screen rolling into a metal, tubular case, which comes complete with tripod stand. This screen is equipped with a novel erecting feature which makes it possible to lift the screen into full and positive operating position in one motion. The mechanism holds the screen in perfect alignment so that the screen will not swing on the stand.

Da-Lite Master Screen

The Da-Lite Master Bead Screen is a real achievement in screen design for the use of schools, clubs, churches, institutions, etc. The case into which the screen folds is a steel-bound fiber-case trunk, and the operating mechanism is such that the screen never has to be touched by the hands in raising and lowering. A hand crank operates a worm and gear mechanism, which raises the screen smoothly to its full height quickly and with little exertion. A 9'x12' Da-Lite Master Screen can be erected in half a minute. After the screen is erected, it is then further stretched just enough to remove any "waves", by means of a stretching device attached to the roller —an exclusive Da-Lite feature

Have You Placed Your Advertisement In The Cinematographic Annual?

Babbling About Brittany

(Continued from Page 34)

intimately in her fountain at the base of her statue with formality and precision. I do not know if they must spend the night in pagan prayer but I do know that they bring their swains with them for protection against the dangers of the night. Their prayers are invariably successful

Now should you feel that you have committed a mortal sin in dallying with pagan gods, you can go a little way down the road to quite another shrine—"Notre Dame de la Roche" Up a short flight of steps from the roadside is a shrine formed of a natural cave, closed in by a arched and grilled gate

It is a tiny grotto, only a few feet deep, and about eight feet high Inside a statue of Our Lady above a small altar **And loads and loads of flowers.** And I do not suppose they are seen by more than one visitor or so a month Who keeps the shrine supplied with flowers? The little girl who is kneeling in devotion in front of the shrine She, and her mother and her little sister But mostly she, herself

So you may contemplate this lovely grotto shine, you may admire this little girl's spiritual devotion,—but—you will carry away with you the indelible impression made upon you by that amazing, unexpected, flamboyant, brazenly pagan figure, Miss—the Venus of Quinipilly

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Barker Bros. Studio Service

IN the matter of rentals, Motion Picture Producers find it is as important that sources offer a constantly changing selection of furniture and accessories as it is that those pieces be authentic in period type Thus it is that Barker Bros Motion Picture Rental Department, in the Wilshire Studio, 3235 Wilshire Boulevard, offers an unique service that is being received with unreserved approval

Those who make use of this Barker Bros.' service have unrestricted selection from not one but three establishments Comprehensive collections of the finer modern furniture and accessories for living room, dining room and bedroom, as well as furniture antiques and reproductions, lamps, rugs, rare bronzes, wall hangings and paintings, are shown in the Wilshire Studio, the Los Angeles Store, as well as the Hollywood Store Selection from these three sources makes it a very simple matter to find exactly the type of piece, or pieces, for particular scenes Too, such pieces are constantly being sold, constantly replaced with others, so that there is never the inconvenience of having to select furniture and accessories that have grown familiar to the theatre going public Through this Barker Bros Rental Service the studios are given unrestricted choice of these tremendous stocks

A specialization in the modern as well as authentic French and English periods, and in those impressive pieces of unusual photographic qualities, makes Barker Bros Rental Department of particular importance to the Motion Picture Industry As comprehensive as the furniture collection is the selection among accessory furnishings that simplify the plan of complete settings

Barker Bros also render a most complete service to theatres Here the stage settings are equally important and call into an augmented service In the case of the legitimate stage, Barker Bros will place at the disposal of the producers one of Barker Bros experts, versed in the technical requirements and with a thorough knowledge of period types, to select the required furniture and accessories for complete scenes

Talking Films on British Railroad Train

CO-OPERATION between British-Gaumont and the London and North Eastern Railway recently resulted in the showing of a full program of talking films on a train, according to Trade Commissioner George R Canty, Paris, France

It is now expected that long-distance trains will in due time have their regular cinemas

A 60-foot coach on the "Scarborough Flier" was converted in 12 hours for the demonstration, felt and tapestry being used as sound absorbers A small van coupled to the rear of the coach contained all the necessary equipment for the supply of power British Acoustic sound set was used It is stated that in spite of the elaborate precautions there was some difficulty in hearing during the outward journey On the return, however, the loud speaker was placed in front of the screen, instead of behind, as previously, and it was possible to hear almost every word clearly Passing trains proved one of the disturbing influences

The portable set used possesses a fan attachment which blows a continuous blast of cold air into the projector lamp housing so as to reduce risks of fire to a minimum Moreover, non-flam films were used

A Gaumont technical expert stated that if the invention proved popular, it would be possible to design a coach that would give perfect results, or to convert an old coach satisfactorily It would be necessary to line the floor with cork and the coach with a more suitable sound-proofing material than felt

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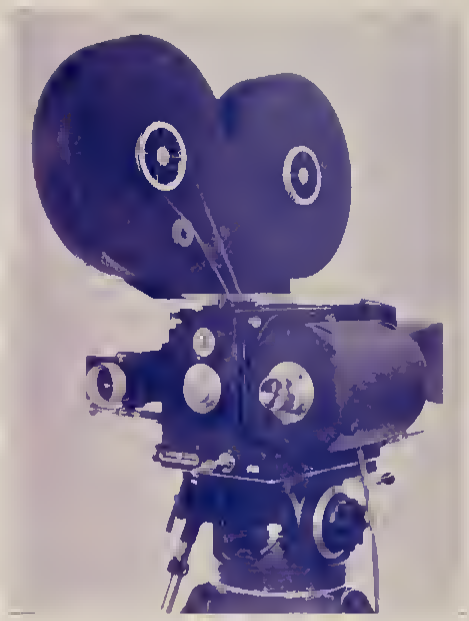

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